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AMERICAN AVIATION

August 11, 1958
30 CENTS

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SERIAL RECORD

WINSTON-SALEM AIRPORT

THE FAIRCHILD F-27 PACEMAKER—Piedmont Airlines, serving more than 50 cities from the Mid-Atlantic to the Mid-West, is the second U. S. airline to take delivery of the Fairchild F-27—first CAA certificated propjet and soon to be the first American turbine-powered airliner to enter scheduled passenger service. Piedmont will soon introduce on its routes the F-27 Pacemaker, a perfect name for this fast, new pressurized, air conditioned luxurious transport. The propjet F-27 on local service lines and the jets on the trunklines will forge a nation-wide network of first-class service to your every destination.
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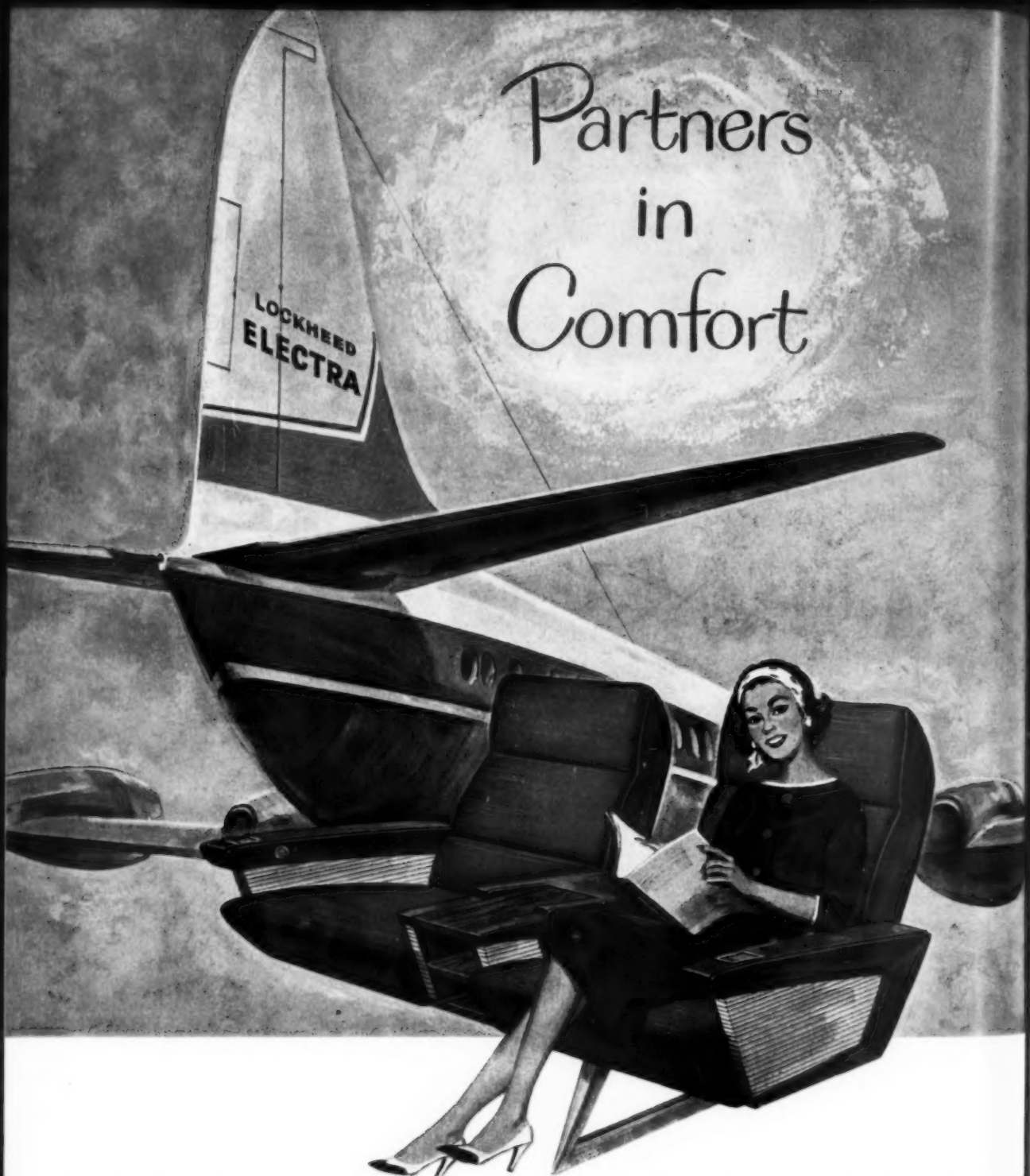

There's excitement in the air as America approaches the jet age of travel. Anticipation runs high as air travelers look forward to new concepts of flight. Lockheed's Electra prop-jet, for example, will slash time schedules with its smooth, dependable, vibrationless flight. The Electra's wider cabin means more passenger comfort. Hardman has worked with Lockheed to give you this comfort. Spacious Hardman lounge divans will provide gracious elegance. The Electra seats being produced for Hardman airline clients offer "magic carpet" passenger luxury in the new air age.

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AIRTRENDS

Mere six-month extension of Renegotiation Act, approved by House Ways and Means Committee, is seen as concession to committee members who are critical of renegotiation process. Equally significant is proposed amendment that would permit appeal of Tax Court decisions to the U.S. Court of Appeals.

Only other change expected would make contracts handled by newly created National Aeronautics and Space Administration subject to renegotiation. Defense Department specifically sought inclusion of advanced-type space weapons under renegotiation. (See story, page 21.)

Economy-minded President Eisenhower refuses to bow to any pressures that might add to anticipated $12-billion deficit for fiscal 1959. His veto of Independent Agency Appropriations Act, because of a provision calling for payment of an additional $589 million to the Civil Service retirement and disability fund, caught some Congressional pundits flatfooted. Even in times of emergency, President still dislikes unbalanced budgets.

Logical choice for the soon-to-be created post of Federal Aviation Agency Administrator is E. R. (Pete) Quesada, Special Assistant to President Eisenhower for Aviation Matters and head of the Airways Modernization Board, or CAA Administrator James T. Pyle. However, the politicians are reportedly moving in with Louis Rothschild, Commerce Under Secretary for Transportation, reportedly leading the parade.

Either Quesada or Pyle would be quickly blessed by the Senate, according to these reports. However, indications are that the nomination of Rothschild, who has frequently denied the responsibility of the federal government for airports and, to some extent, for airways, would lead to a long and bitter Senate fight. Whether President Eisenhower will bow to the politicians remains to be seen. Trouble is that neither Quesada nor Pyle would make a fight for the new job, while the politicians will. Informed sources say that the best that Rothschild could get would be a recess appointment, which might satisfy his ambition for a more important job than he now holds.

•

New FAA will have hard row to hoe, cannot be expected to solve all aviation problems overnight. For example, bill to create new agency provides for appeal to President for final determination of some matters involving new air bases and missile sites. In certification of aircraft and pilots, there is provision for appeal to CAB.

FAA should eliminate some confusion and duplication, however. With civilian administrator empowered to allocate airspace and control its use, chances of mid-air collisions should diminish. FAA will also develop and operate a modern common system of air navigation facilities, long recognized by airline industry as a crying need.

Bill to create FAA, differing only slightly from Senate version, passed House by voice vote in record 16 minutes. Issues have been debated for years.

Restrictive legislation may be ordered for aviation insurance writers if a Congressional probe confirms suspicions. The Senate Judiciary Antitrust Subcommittee last week launched a comprehensive probe of the whole insurance program.

Investigators will ask this question: Are too few firms writing too many of the aviation trip and liability policies? Actually, the states are supposed to ride herd on aviation insurance. Initial findings by the subcommittee suggest the opposite—and new laws could be in the offing. Simultaneously, probers will air charges that airports are gouging trip-insurance writers with excessive fees.

Congress' performance schedule looks good, from the standpoint of industry, as it races down the homestretch towards adjournment. However, what actually gets by and what will be left for another Congress won't be known for sure for some days after adjournment, which will come certainly before another issue of American Aviation goes to press.

The big bills will be easy to account

for. Trouble will lie in the legislative riders and small provisions in omnibus bills which never show up clearly. As usual, the record will include inconclusive investigations and studies on which reports won't be filed until next year, such as those dealing with contractor-operated, government-owned aircraft facilities and negotiated procurement practices.

One of the biggest questions of the week at presstime was whether the House would buy an increase of $140 million in the Air Force budget for the development of new airlift-type aircraft. Question won't be answered until after Senate-House conference committee meets on Defense Department budget and reports to House.

Collateral question involves other funds provided by Senate to buy more B-52Gs and Kc-135s. If Senate action is approved, there will be a full wing of intercontinental bombers instead of the shrunken wing originally planned. Past performance, however, indicates Senate action will be substantially modified by conference committee.

Money for the UCX and UTX aircraft will almost certainly be given to the Air Force when the House-Senate Conference Committee completes work on the Defense Budget.

Considerable optimism about repeal of 10% excise tax on transportation of passengers was generated by Sen. Warren Magnuson (D-Wash.) following issuance of Cherington Report by the White House (see page 49). Magnuson said flatly that if report had been in hands of Congress earlier the transportation tax might already have been killed. Senator Magnuson, who is chairman of influential Senate Commerce Committee, said the Cherington report pinpointed difficulties facing the airlines and outlined several possible solutions. He declared that repeal of the tax "must surely follow next session."

President's veto of independent offices appropriations bill should not affect proposed National Aeronautics and Space Administration. Senate has approved President's supplemental request for $47.8 million for construction projects to be initiated by NASA. Funds were included in White House request for $125 million which included $70.2 mililon for contractual research, development, operations, technical services and materials for unspecified civilian space projects.

More than half of the $47.8 million figure—$24.5 million—is earmarked for expansion of facilities at Wallops Island, Va. Other money asked for: $3,750,000 for a special space project center near Washington; $19,550,000 for instrumentation of facilities now being operated by National Advisory Committee for Aeronautics, which is to be absorbed in new agency.

Appointment of Presidential fact-finding boards does not necessarily speed settlement of labor disputes, says Leverett Edwards, chairman of the National Mediation Board. Edwards' point was made in a letter to Sen. Karl Mundt (R-S.D.) replying to the senator's request for information about NMB's action or inaction in certifying airline labor disputes to the President. (Section 10 of the Railway Labor Act provides for such certification in an emergency.)

Edwards said "the mere possibility, or hope, that such a Presidential board may be created induces the parties to suspend collective bargaining efforts. It also impedes the Mediation Board's endeavors to mediate and/or induce the parties to submit unresolved issues to arbitration."

In Edwards' view, arbitration is a "far preferable" procedure because it results in a binding award and final settlement of the dispute.

Railroads continue to get the jump on airlines when it comes to Government aid. Awaiting the President's signature is a bill to aid the railroads with Government-guaranteed loans up to $500 million. While CAB is authorized to make government-guaranteed loans to airlines, it is limited to $5 million per carrier. Bill to aid railroads is believed to be generally more liberal than airline legislation.

Bill to aid railroads also permits loans to be made for both capital expenditures and maintenance, while bill to aid airlines allows loans for equipment purposes and restricts such loans to local service and territorial carriers.

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AMERICAN AVIATION

AUGUST 11, 1958—VOL. 22, No. 6

WORLD'S LARGEST AVIATION PUBLISHERS

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Power growth of the Dart prop-jet

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36% more power for take-off
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12% higher power/weight ratio

During the five years since it entered airline service the overhaul life of the Dart has been raised as far as 1,900 hours.

Dart engines of 2,660 t.e.h.p. for delivery in 1960 will show the following improvements over the first production engines —

73% more power for take-off
15% lower specific fuel consumption
36% higher power/weight ratio

Work is in progress on versions of the Dart at higher powers and lower fuel consumptions, and a 25-hour test has already been successfully completed at a rating of 3,200 s.h.p. for take-off.

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—PERSONAL VIEW—

Needless Ruckus

A few issues ago (June 2) we said on this page: "By its own reckoning a 34-year-old is of no military use as a jet pilot". Quite a ruckus ensued and even our own editorial staff got needlessly confused.

We had direct reference to *jet combat fighter pilots,* although we were anything but specific as we should have been. Naturally, command pilots, test pilots, airline pilots, and particularly pilots of B-47s, B-52s and what-have-you range in age on up the scale. There is nothing so mysterious about a jet engine, as such; but the military services certainly won't use oldsters to fly the hot types such as the Century series in combat as long as more alert youngsters are around.

Age limit for jets? Of course not. There will be *jet* pilots of fifty, sixty and older, and for ourselves we'll prefer to fly with those who are *over* 34 since we don't expect to be hopping around in combat in F-104s. For the same reason that the military wants and needs young hot-rodders for combat fighter types, problems in air traffic control exist today. This is the crux of the problem—how to discipline the young bloods when they're flying in the same air as commercial aircraft. The age of pilots who flew in Korea is scarcely at issue; the F-86 was the hottest thing around then. The Century series weren't even built at that time.

Waiting is Dangerous

Successful as the airlift to Lebanon turned out to be, it was performed under ideal conditions. Even then, it took too long. This country's air logistics is still treated as a side issue and referred to as an emergency.

Military and commercial air transport must become an integral part of national policy and national planning, or we face ultimate disaster. The defense need is obvious. But we also need action to counter the U.S.S.R. in its vast, broad moves to expand its air transport and spread the use of its aircraft to needy nations.

The Cherington report in this issue, pointing up the fact that private capital has raised $4 billion in new aircraft orders, shows that our private enterprise system is healthy and working. But somewhere along the line the resources of private capital are going to be strained beyond competency. We should right now be planning supersonic airplanes but private capital cannot do the job with commercial use so far in the future. The first supersonic requirements should be military.

The U.S. is moving heavily into the commercial jet era largely because of private capital, although much advance work had been accomplished in airframes and engines by the military in the past decade. It is high time to coorpinate military and commercial efforts, else this country's progress in airlift will lag behind. In fact it has already lagged too far behind even now—the military has no jet transport fleet in being or on the way.

Penalties for Pioneering

There were two tragedies in the death of Capt. Iven C. Kincheloe on July 26 at Edwards Air Force Base. The loss of the great USAF jet and rocket plane pilot needs no amplification, but it is shameful in this great country that a man so skilled and valuable met his death with the rank, pay and death benefits of a captain.

Men like Iven Kincheloe, test pilots of patriotic dedication, pioneering and courage, suffer heavy financial penalties in the pursuit of their work. And so, too, do their families. SAC has partially remedied this unfair situation with its on-the-spot promotion system. But USAF and the other services have been negligent in failing to set up a system by which test pilots pushing experimental craft through new barriers of space are properly rewarded.

USAF should ask Congress promptly for legislation to provide the Kincheloe family with adequate security in accordance with the outstanding contributions made by the valiant pilot. Then it should take immediate action to establish a system of upgrading those of its test pilots who are performing great services which are expanding the horizons for tomorrow.

Helicopter Boom

Watch the helicopter business. It's beginning to go places. When Chicago Helicopter Service can reach a 10,000-passenger-per-month level in less than two years, there is no longer any doubt about public acceptance.

Los Angeles Airways, the first of the three scheduled whirlybird lines, has just issued a brochure, "A new dimension in transportation," to mark its tenth anniversary. With something less than wholehearted support from the CAB, Clarence Belinn has racked up an impressive record. Starting out as a mail-only carrier, LAA still carries as much mail as the other two services combined, although the New York and Chicago lines have passed up LAA in passenger traffic.

We think it is a real achievement for the three carriers that last year they carried over 153,000 passengers. This year the total will be much higher. In the first five months alone, the total came to over 76,000. And the traffic developed by Chicago Helicopter in less than two years is probably a world record of some sort.

Although passenger revenues are as yet far from matching operating costs, steady progress is being made. New York Airways reported passenger revenues of $517,000 for 1957, a substantial total.

We think the record for the past two years well justifies an extension of helicopter routes by CAB to other metropolitan areas. Recent equipment advances bring closer the day when heavy subsidies will no longer be necessary. In one decade the helicopter has well proved itself for both mail and passengers. It's time to expand.

Wayne W. Parrish

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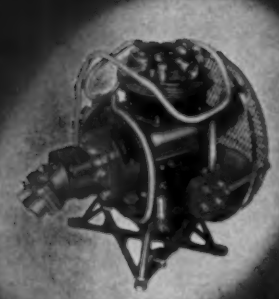

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LETTERS

Strange and Beautiful

As an avid and enthusiastic follower of "En Route" I was greatly amused by your oyster experiences in Invercargill, New Zealand. Such experiences are apparently common in that beautiful country.

Back in 1957 on arriving at plush Brents Hotel, Rotorua, North Island, clad in sporting attire (external temperature 103°F), I was informed by the young lady receptionist that I could not sign the register or enter the hotel until clad in a necktie. Opening my case there and then in the foyer, I produced a garish selection for her choice and without a smile she picked out a quiet silk affair which I duly donned, thereby gaining a room in which to rest my weary head.

Another peculiar custom in New Zealand hotels are the meal times. Dinner is served between 18:30 and 19:30 and if you arrive after that, you go hungry till next day! Anyway you have to eat at that hour, as the hotel bar closes at 18:00. A sight to be seen is the stampede for the dining rooms at 18:30 by no longer thirsty but more than somewhat hungry New Zealanders.

I much enjoyed your "En Route" experiences in Australia and New Zealand and through them heard again of many old friends in aviation in these countries.

More power to you in, I hope, your continued experiences "En Route".

Dr. F. S. Preston
Regional Medical Officer
British European Airways
London Airport North
Hounslow, Middlesex, England.

They Like Data Cards

Reference Aircraft Data Cards—a very nice addition to your magazine. Just couldn't help writing a few lines to let you know that I appreciate them. As a member of the CAA, I like to get as many facts on different aircraft as possible, just for personal information.

So—hope you'll keep them coming a long time. Thank you very much.

Sam Countryman
Box 1092
Dickinson, N. Dak.

•

I would like to commend you on the Aircraft Data Cards you started featuring in your magazine. I have been working on a file of my own very similar and the 3 x 5 cards you use are the same as I do, so it works out for me very well. I hope you will continue it indefinitely and also pick up some of the older aircraft.

Marvin R. Becker
3086 Taper Ave.
Santa Clara, Cal.

Sorry, Frontier

Not too happy to learn from AMERICAN AVIATION, July 28, page 53, that Frontier Airlines is not involved in the Seven States Case.

G. S. Kitchen
Public Relations Director
Frontier Airlines

EDITOR'S NOTE—In the table listing the airlines involved in CAB's area cases, Central was erroneously included in the Seven States Case and Frontier was omitted. Route awards in this case will jump FAL's route mileage by 72%, add 400 employes to the payroll.

AMERICAN AVIATION offers these columns to readers for expression of opinion and criticism on the editorial content of this magazine and/or happenings in the aviation industry. Address such correspondence to Joseph S. Murphy, Executive Editor, American Aviation, 1001 Vermont Ave., Washington 5, D.C. Anonymous letters will not be printed; however, names will be withheld on request.

When & Where

AUGUST

National Flying Farmers Assn., annual convention, Hotel New Yorker, New York City, Aug. 11-15.
ASME, Heat Transfer-American Institute of Chemical Engineers, conference, Northwestern University, Evanston, Ill., Aug. 18-21.
IRE and West Coast Electronics Manufacturers Assn., western electronic show and convention, Ambassador Hotel and Pan Pacific Auditorium, Los Angeles, Aug. 19-22.
Annual Jaycee Air Fair in conjunction with dedication of new airline terminal, International Airport, Portland, Ore., Aug. 23-24.
National Flying Club Assn., annual convention, Hollywood Roosevelt Hotel, Hollywood, Calif., Aug. 25-27.

SEPTEMBER

SBAC annual flying display and exhibition, Farnborough, Hants, England, Sept. 1-7.
International Aviation Show, Coliseum, New York City, Sept. 6-14.
First International Congress of Aeronautical Sciences, Palace Hotel, Madrid, Sept. 8-13.
Air Cargo, Inc., air freight cartage conference, Hotel Sherman, Chicago, Sept. 9-10.
American Rocket Society, fall meeting, Hotel Statler, Detroit, Sept. 14-18.
American Petroleum Institute, Aviation Technical Service and Aviation Advisory Committee, joint meeting, Melrose Hotel, Dallas, Sept. 15-17.
Instrument Society of America, annual instrument automation conference and exhibit, Convention Hall, Philadelphia, Sept. 15-19.
National Business Aircraft Assn., annual meeting, Bellevue-Stratford Hotel, Philadelphia, Sept. 22-24.
National Assn. of State Aviation Officials, meeting, Bellevue-Stratford Hotel, Philadelphia, Sept. 24-26.
American Helicopter Society, annual western forum, Ambassador Hotel, Los Angeles, Sept. 25-27.
Air Force Assn., annual convention and airpower panorama, Dallas, Tex., Sept. 25-28.

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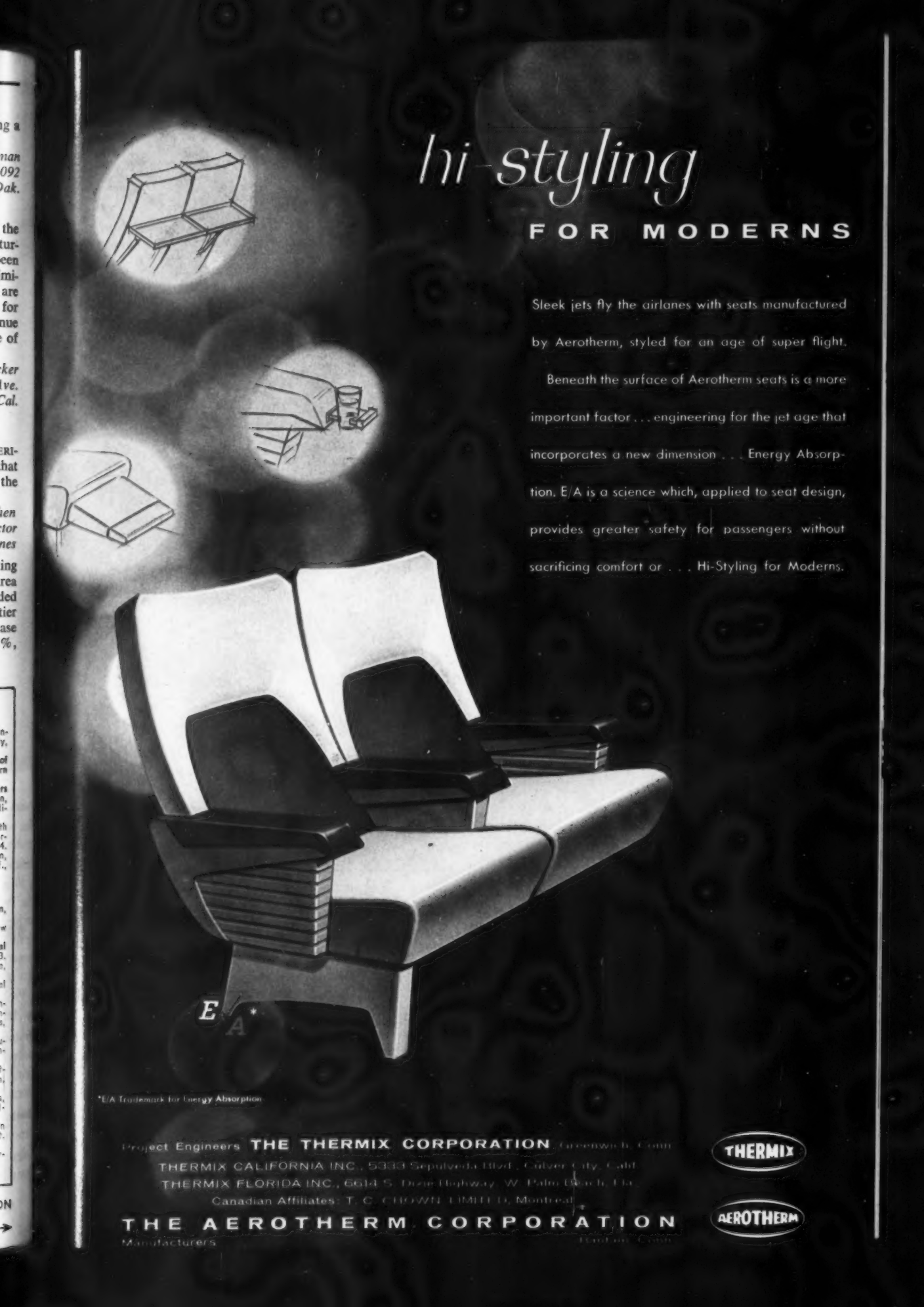
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Beneath the surface of Aerotherm seats is a more important factor . . . engineering for the jet age that incorporates a new dimension . . . Energy Absorption. E/A is a science which, applied to seat design, provides greater safety for passengers without sacrificing comfort or . . . Hi-Styling for Moderns.
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The NEW CHALLENGER

For short-to-medium routes

—Ahead in Economy

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Newest Member of a Family of Greats

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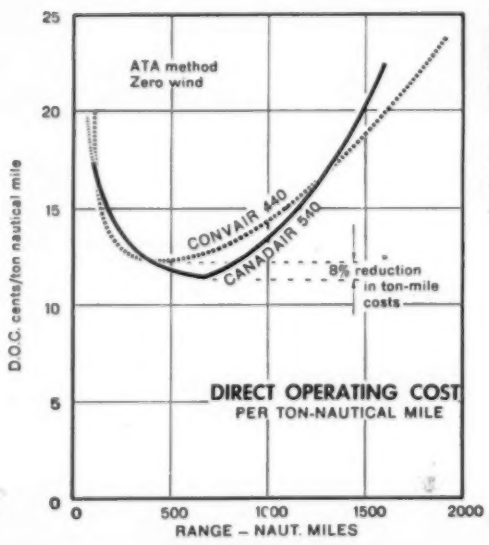
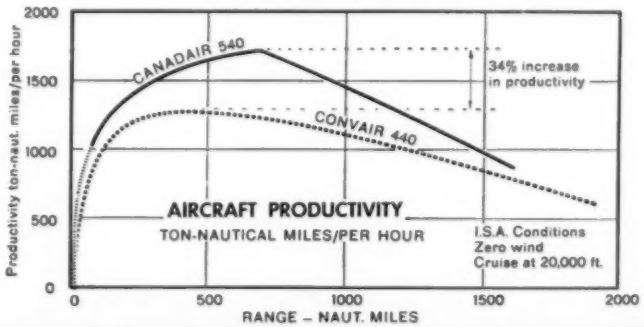
540 TURBO-PROP

Powered by Napier Elands



Graph at left, based on the ATA formula, shows that the direct operating costs of the "540" are as much as 8% lower than the "440". This applies particularly on stages over 400 miles; under 400 miles the graph indicates the two are approximately equal. Not reflected, however, are additional reductions in airframe and engine maintenance costs because of the more basic reliability of turbine engines and a minimum of vibration. This makes the "540" more economical than the "440" over any stage length.

Graph below shows the very definite superiority in aircraft productivity of the Canadair "540" over the "440", which is as much as 34% at their optimum ranges. This indicates that for equal annual utilization the "540" could produce 34% more ton miles; or equivalently, the Canadair "540" fleet size required to do the same job could be reduced by 34%, with a consequent saving in capital investment.



C-L CANADAIR

LIMITED, MONTREAL, CANADA

AIRCRAFT • GUIDED MISSILES • RESEARCH AND DEVELOPMENT • NUCLEAR ENGINES FOR

CANADAIR IS A SUBSIDIARY OF GENERAL DYNAMICS CORPORATION

AIRTRENDS

Edited by Elizabeth Oswald and Albert Bentz

Pressure will increase to get the military to give additional overhaul and maintenance work to private industry. However, indications are that answers can be found only by increasing the percentage share of the private contractors since totals spent for aircraft maintenance are expected to go down with the declining number of planes in Air Force and Navy inventories.

•

Navy is resisting the pressure from service companies on the ground that it is more economic to maintain the Navy shops already in being. It also points to the need for maintaining a service capability for the maintenance and overhaul job so that aircraft out of service are kept to a minimum. Navy's overhaul money in fiscal year 1959 gives only $29 million to private industry, with a whopping $217 million for its own shops. No new contracts are to be let.

•

AF is doing better, as far as private industry is concerned. A little more than one-half the money for maintenance labor will go to private companies. But AF also feels it must maintain a capability in its own Air Materiel Areas. Its concern, in part, at least, is the support of planes and engines no longer in production.

Betting is even money on Navy's decision between Chance Vought's F8U-3 or McDonnell's F4H-1. Both are flying, but selection won't be made until late in year. Navy is impressed with safety built into the twin-engined F4H-1 and the Air Force's F-101, which is similar to the F4H-1. Others are equally impressed by the high-performance characteristics of the F8U-1 and -2.

$50 million bill last year for damage to jet engines has caused USAF to establish position of "foreign object damage officer" at each jet base. Primary causes of damage are careless maintenance, inadequate operational procedures, unsatisfactory field conditions, design characteristics of engines and planes. USAF wants steps taken to prevent dropping or leaving of tools, nuts, bolts, etc., near engine intakes. It also called for cleaner engine operating areas, including ramps, runways, test cells and overruns.

Battle between Air Force and Navy over characteristics of the nuclear airplane and its reactor is still raging. Navy still likes the idea of a seaplane with a relatively small, speedy engine, while Air Force is still talking about a big engine to be used in a bomber. No real light is expected on aircraft nuclear propulsion program until late this fall.

Army's efforts to get more aviation are being intensified. Significant is creation of a new position, Deputy Chief of Transportation for Aviation, which has been filled by Brig. Gen. Richard D. Meyer, a logistics expert and flier. Reportedly he will be interested in combat aircraft as well as increased airlift.

Halt in skidding employment in aircraft and parts industries is expected this month. Reversal of trend is likely this fall as effect of new orders placed late last year begins to be felt. Reduction in work force during past 15 months has amounted to 150,000, caused serious economic dislocations in some areas.

Air Force will make new study on possible uses of big forging presses at Aluminum Co. of America and Wyman-Gordon. Idea is that presses can be used to solve some of the problems of making new and exotic materials and change the atomic structure of others. Meantime, use of the presses is reportedly increasing.

Fiat is still hoping to get orders from Italy's NATO partners for the G-91 close support tactical aircraft. So far only orders have been from Italy and they aren't big enough to provide a real production run. This despite the fact that the G-91 won the competition to provide NATO armies with the kind of support they say they need.

Northrop says its N-156F counterair fighter isn't competition in any sense, since the Fiat plane was designed to meet

Army needs and the Northrop design is for NATO Air Forces. However, its trouble stems from the fact that it hasn't flown yet and probably won't fly before late 1960.

Cooke AFB, Calif., will become Vandenberg AFB Oct. 4 in honor of the late Gen. Hoyt S. Vandenberg, USAF Chief of Staff until his retirement in June 1953, shortly before his death. Field, originally an Army base, was named for Philip St. George Cooke, early-day soldier, Indian explorer and author.

Both the B-70 and F-108 will rely heavily on nickel stainless steels to solve problems of aerodynamic heating. Answers may be found in new steels developed by Allegheny-Ludlum being readied for production.

Responsibility for buying all AF jet engines may ultimately be given to Oklahoma City Air Materiel Area, at Tinker AFB. Presently OCAMA is responsible for the General Electric, Allison, Westinghouse and Bell engines. Pratt & Whitney, Curtiss-Wright and Fairchild engines are bought elsewhere.

The situation is confusing because OCAMA is responsible for inventory management of all engines and also is weapon system manager for the B-52, which uses P&W engines, while San Antonio is responsible for the B-58, which uses GE engines.

Slower tactical aircraft, instead of Mach 2-3 types, may be needed in the event of another Mideast crisis. This, at least, is a belief growing in some circles as Defense Department planners work on fiscal 1960 programs. Fear is that some of the supersonic interceptors being developed are too hot to handle in anything short of an all-out war.

Management of Air Force's reserve tool program goes to Warner Robins Air Materiel Area, Macon, Ga., under stepped-up decentralization program of Air Materiel Command. Warner Robins will develop a common machine-tool system of cataloguing and identification for industrial and military equipment. And more decentralization is in the cards.

Navy will take its time evaluating its first primary jet trainer, Temco TT-1 (see photo, page 39). Aircraft was designed to make the transition from jet trainer to combat aircraft easier for the cadets. Chances are that if Navy likes what it finds, there will be money in the fiscal 1960 "buy" program for the TT-1.

Defense Department expenditures for fiscal '58 for military functions topped $39 billion, a billion more than the pre-Sputnik economy ceiling. Big question is: How much of the excess spending represents increased effort, how much absorption of the decline in the value of the dollar resulting from inflation which wasn't cranked into the budget ceiling. Total expenditures in June amounted to $3.852 billion, with the Army accounting for $1.056 billion, the Navy $965 million and the Air Force $1.764 billion. Balance of $67 million was spent by the Office of Secretary of Defense.

Army has Defense Department authority to buy a total of 35 Grumman two-place AO-1 turboprop Mohawks. No purchase order will be executed until after Navy evaluation of nine prototypes now being built under a $22.2 million contract. The plane, capable of takeoffs and landings on short and unimproved runways, is powered by two Lycoming T53-L-3s, has top speed of 275 knots, stall speed of about 55 knots. Empty weight is 7,700 lbs.

Navy wants to build all-weather capability into its helicopters. So does the Marine Corps. However, chances for getting what they want are slim because of high costs which are eating into available Bureau of Aeronautics funds.

Recent price hikes for steel and other metals make it virtually impossible to hold the aircraft price line already threatened by labor increases. Result is that drastic reprogramming is almost inevitable as fiscal officers of the Army, Navy and Air Force seek to live within quarterly spending estimates.

Bell Aircraft is working hard on the Hypernas II, contractor code name for an air navigation system for hypersonic aircraft and missiles.

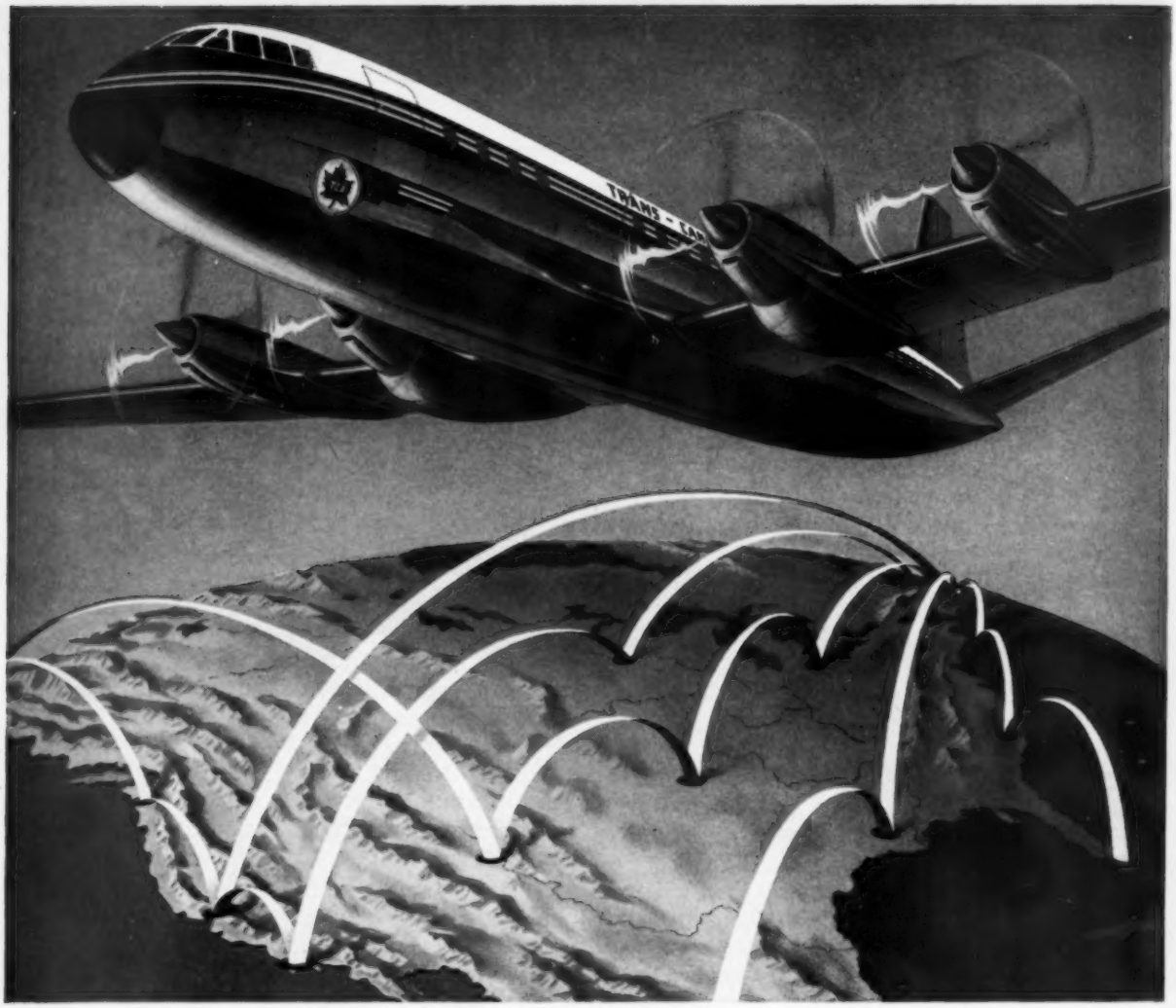
430 AMERICAN FLIGHTS PER DAY RELY ON SINCLAIR...

Every day, nearly 22,000 people board approximately 430 American Airlines flights, many of which are American's famed Mercury flights utilizing 365-mile-an-hour DC-7 Flagships.

All American Airlines flights are lubricated with Sinclair Aircraft Oil. In fact, American Airlines has relied exclusively on Sinclair Aircraft Oils for 25 years. This, plus the fact that 45% of the aircraft oil used by major scheduled airlines in the U.S. is supplied by Sinclair, is a tribute to Sinclair reliability.

SINCLAIR AIRCRAFT OILS

Sinclair Refining Co., Aviation Sales, 600 Fifth Ave., New York 20, N. Y.



WHY VANGUARD ASSURES GREATEST ROUTING FLEXIBILITY

The great new Vickers Vanguard will introduce the cost-cutting advantages of big payload capacity— plus the well-known economies of jet-props—on stages ranging from 200 all the way to 2600 miles. What's more, the new Vanguard can be operated from *any* "Viscount" airfield.

Economical on all ranges

TCA recently spent two years comparing the operating costs of several large-capacity Jet Age airliners—both jet-prop and pure jet. *They found that the Vanguard would be most economical of all for their high-density, medium-range routes.* Other studies have shown that the Vanguard, because of its large size and low break-even load factors—*below 50%* on ranges from 200 to 2600 miles—will offer the biggest profit potential of *any* aircraft in its class.

Double-deck fuselage

Another factor in the Vanguard's unequaled routing flexibility is its *double-deck* fuselage design which gives excellent balance between large passenger *and/or* freight capacity. In addition to the big, wide, comfortable passenger cabin above decks, there are two big lower deck cargo holds. These have a total area of 1360 cubic feet—enough to carry a 10-ton payload. Thus, during off-peak periods, the Vanguard can continue to earn revenue as a *freighter*—with *no* alterations! This represents a real competitive advantage to carriers with hourly, seasonal or directional routes.

An experienced Vickers engineering team, familiar with the operating problems of American carriers, is available for consultation at your convenience. Call or write: *Christopher Clarkson, U. S. representative, 10 Rockefeller Plaza, New York 20, N. Y.*

420 mph plus . . . 2600-mile range . . . up to 139 passengers . . . up to 10 tons of freight

***NEWEST* FROM THE WORLD LEADER IN JET-PROP AIRCRAFT . . .**

VICKERS VANGUARD

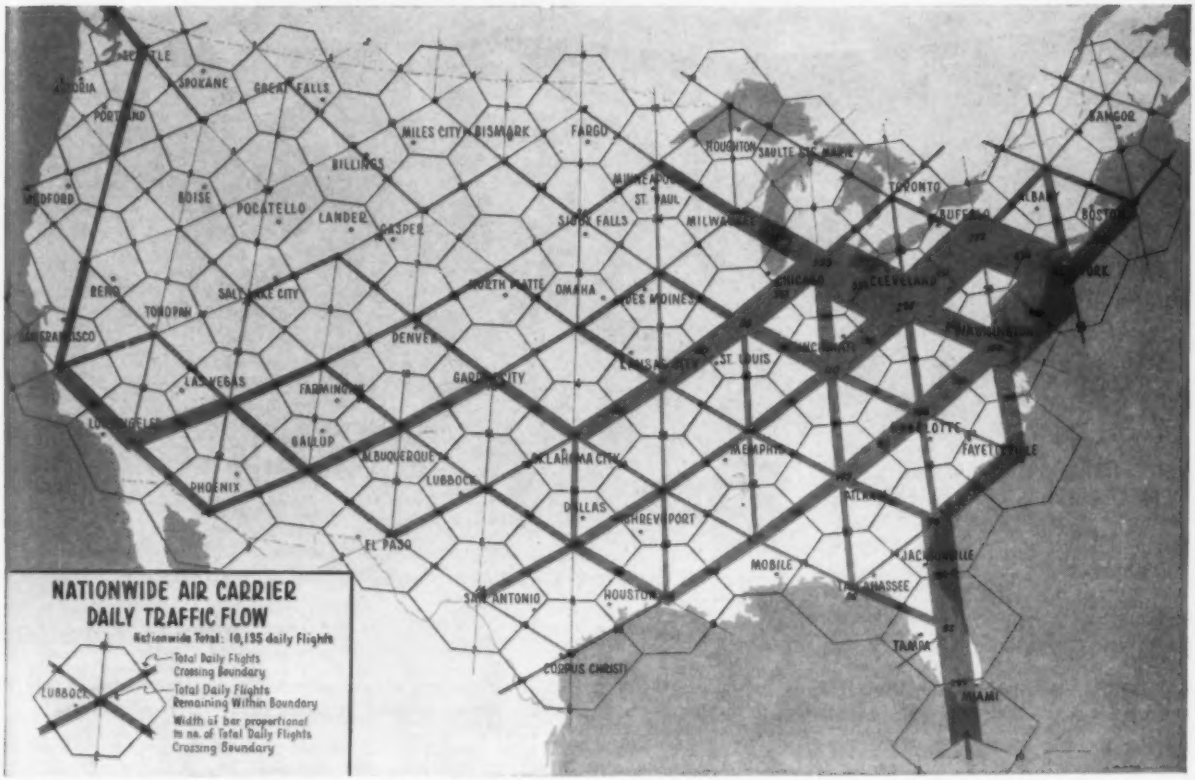
POWERED BY FOUR ROLLS-ROYCE TYNE ENGINES

VICKERS-ARMSTRONGS (AIRCRAFT) LTD. • WEYBRIDGE, ENGLAND • MEMBER COMPANY OF THE VICKERS GROUP

AMERICAN AVIATION

AUGUST 11, 1958—VOL. 22, NO. 6

WORLD'S LARGEST AVIATION PUBLISHERS



HEXAGONAL CELLS have been set up by AMB to divide U.S. airspace. Traffic flow in Southwest was surprisingly low in "dry run" last December. However, when military traffic was added, this area proved to be the most congested.

AMB Begins Fight Against Airspace "Slums"

By George Hart
Technical Editor

"Will the noise in 1975 be so bad that my cows will stop giving milk?"

"We're planning to build a hotel here. How big should we make it?"

"Will we need a four- or a six-lane highway between this city and the airport?"

These are the questions being asked of Airways Modernization Board as a result of its announcement that it has launched a monumental, nationwide air traffic measurement and forecast program. (AMERICAN AVIATION, July 28, 1958, p. 61.)

The program is designed to provide a sound basis for establishing the continuing needs of the country's air traffic control and navigation systems. But there have been so many inquiries from such a wide variety of sources that there's no doubt the board is saddled with a heavy responsibility to the American public.

• **Study to cost $342,370**—The AMB and Booz, Allen and Hamilton, Chicago firm of consultants which has been awarded the $342,370 survey contract, mean to make this study and forecast more accurate than anything ever done before, says R. H. Seaman, chief of the Board's Traffic and Forecast Division.

Accordingly, AMB is going into far more detail than has been attempted in the past. New methods are being used and the ever-changing density of the nation's air traffic is being investigated on an unprecedented scale.

AMB has been working for some time on the problem of how best to tackle the measurement end of the work with a high degree of precision. Seaman's group tentatively settled on a system of dividing the country into 80 "cells." They decided that the size of these "cells" should equal the area covered by most VHF radio aids, radar, etc. planned for use at airports and on the airways.

Ideally, the "cells" should be circular, but circles don't fit neatly together. So hexagons were selected to approximate circles as closely as possible and cover the country completely.

AMB subjected this system to a "dry run" last December and, unless they come up with something better, the consultants will use it to measure and forecast—by June 30, 1959—three basic elements concerned with air traffic control. These are:

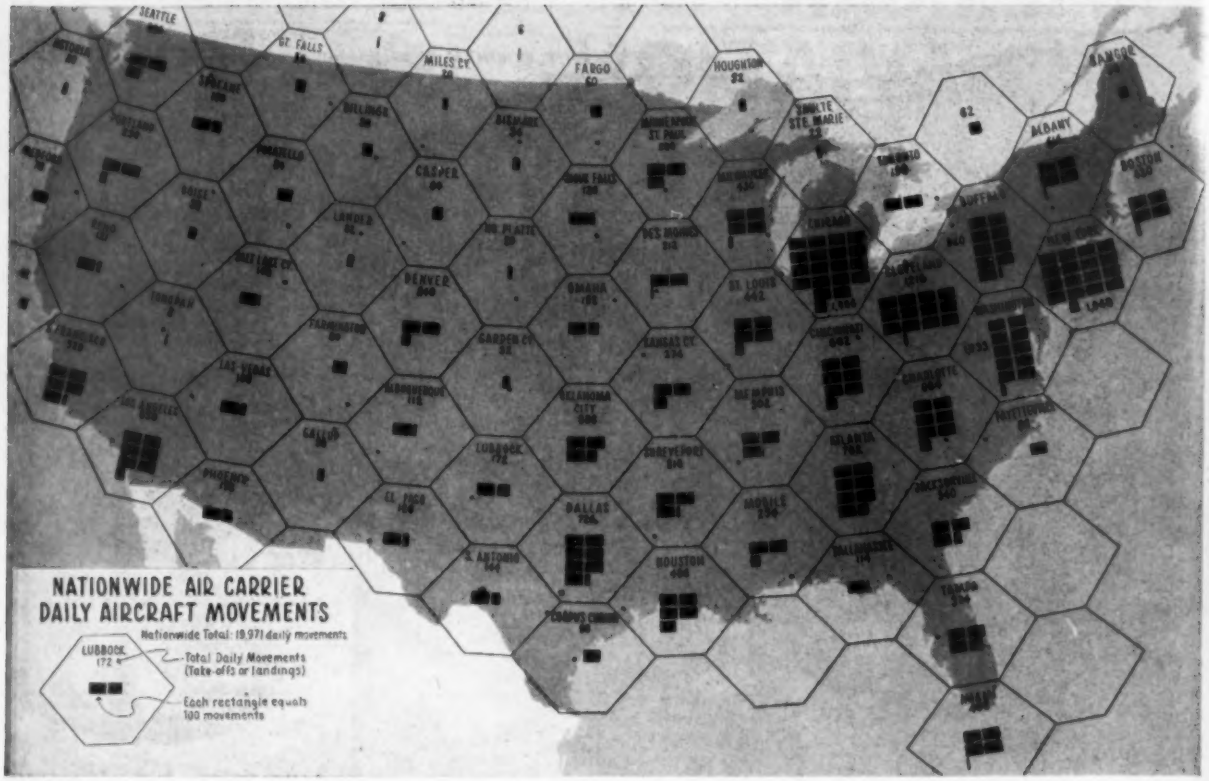
• The number of aircraft takeoffs and landings at some 700 representative airports.

• The number of aircraft aloft at any instant within each "cell."

• The volume of traffic flow between the 700 airports as well as between adjoining "cells."

The item in the contract which probably will tax the Chicago firm's ingenuity to the utmost is that which requires it to develop a method for calculating air traffic activity over any specified area in the nation and forecasting changes through 1980. AMB will use

. . . AMB steps in to prevent airspace "slums"



TAKEOFF AND LANDING VOLUME is another area of concern for AMB. Chicago "cell" is the busiest in the country as far as air carriers are concerned. Yet this same area is said to be the worst equipped in terms of actual requirements.

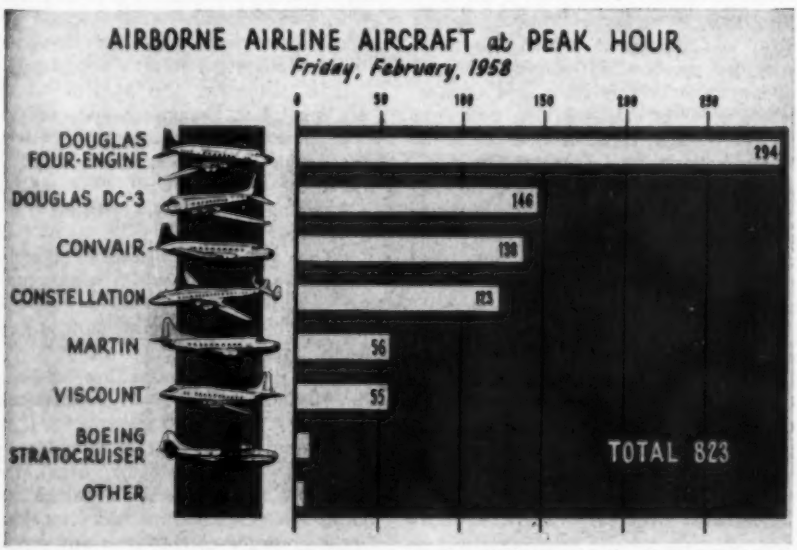
the new-found method to keep up to date after the contract expires.

• **Measurements to include all flying**—All measurements will include air carrier, military and general aviation fleets. Each basic element will be measured on one weekday (Monday through Thursday) and on Friday, Saturday and Sunday.

The reason for breaking the week up this way is that, according to Seaman, aircraft operations remain pretty steady Monday through Thursday. On Friday, military traffic picks up strongly and general aviation starts to roll. On Saturday and Sunday, general aviation flying is heavy but military activity drops off with the exception of the Reserves and the National Guard. On Sunday, the air carriers cut back somewhat on scheduled flights.

One set of measurements will be taken at or between each airport or "cell" during the span of the contract. However, by applying percentages gained from past records, etc., the variations due to weather and seasonal factors will be included in the forecast.

Readings of the number of aircraft airborne at any instant within each "cell" will be taken once each hour on the four days measured. Data for the peak hour in each "cell" will be expanded to show aircraft types involved, flight altitudes, speeds, geographical distribution, number flying on IFR flight plans and number flying VFR, number of local flights and number of itinerants. Air traffic flow and takeoff and landing statistics will be as detailed.



ACTIVITY BY AIRCRAFT TYPE has to be pinned down closely since speed and altitude capabilities are important factors in air traffic control.

• **Hopes to avoid duplication**—In this study, AMB does not intend to duplicate work done recently by CAA or other organizations. Available records which are applicable to the current volume of aircraft operations will be used extensively. For example, as far

as the air carrier segment of the survey is concerned, AMB is making use of punched cards supplied by American Aviation Publications. These cards are used by AAP in compilation of the Quick Reference edition of its Official Airline Guide. AMB checks in the field have proved them accurate within ± 3 percent.

The pattern of military flying will be computed from records maintained by squadron and base offices, flight service centers, etc. That of general aviation will be wrung from CAA records as well as from studies by aviation committees and private research organizations.

Naturally, Booz, Allen & Hamilton expects to check data gained in this manner by making actual counts of flight operations—particularly insofar as general aviation is concerned. Records in this area are sparse and it will be here that the Chicago firm will concentrate most of its attention on data collection.

AMB's slogan might well be: "Avoid airspace slum conditions!"

CONVAIR 600—25 635-mph turboprops were ordered by American Airlines.

Convair and Boeing Get Big Jet Orders

Fifty more jet transports, all to be operated with leased engines, have been ordered by American Airlines, increasing its total jet and turboprop commitment to 110 planes. Included in the order:

Twenty-five Convair 600s, a new 635-mph plane which AA said was especially designed for its requirements. The 600 will be powered by four CJ805 General Electric fan-type engines of 15,000 lbs. thrust each. The order totals $83 million, not including engines, which will be leased from GE. American also took an option on 25 more of the planes. For delivery in 1961-62, the Model 600 will carry 90 to 120 passengers and will be used principally over intermediate distances, although it will be capable of nonstop transcontinental flights.

Twenty-five intermediate-range Boeing 707-023s, for 1960-61 delivery, with option for 25 more. The JT3 engines will be leased from Pratt & Whitney. When placing the order, AA canceled five of the longer-range 707-123s from its original order for 30, and the 707-023 purchase will mean $52 million in new money for Boeing. The 90 to 130-passenger plane will have operating range of 1,850 miles.

The new planes plus those previously ordered total 110 jets and turboprops and represent "the largest fleet of turbine-powered airplanes on order by any airline in the world today," AA said. Total capital commitments (planes and supporting equipment) are $365 million. AA also has on order 25 long-range 707-123s (JT3 engines will be bought, not leased) and 35 turboprop Lockheed Electras (501D engines will be leased from Allison).

By mid-1962 AA expects that it will have only 15-25 piston-engine planes, probably DC-6Bs, for very short-hauls.

• **Engine leasing deals involve $80 million**—The engine lease deals with GE, P&W and Allison total some $80 million. Cost of the GE and P&W leases is based on amortizing the engines over seven years plus the cost of borrowing the money (the manufacturers are expected to establish subsidiaries which will borrow money from banks, buy the engines, and lease them to AA). The airline has option to buy the engines at their then residual value but not less than 10% of original price. AA will overhaul the GE and P&W engines.

The Allison lease, also with option, is based on five years' amortization and also provides that the manufacturer will overhaul the powerplants.

AA president C. R. Smith said the additional purchases will not now require any new financing. Whether or not financing will be required later will depend largely on the level of earnings available to the company, and this will depend in large part on authorization of adequate fares by CAB, he added.

Renegotiation Act Hit

Changes urged by industry include appeal to courts

The Renegotiation Act is stifling development of the airframe and missile industries and impeding national defense efforts, in the considered judgment of responsible leaders of those segments of aviation.

But neither President Eisenhower nor Congress has succumbed to these arguments, despite all-day hearings of the House Appropriations Committee at which the industry's views were ably presented by Boeing President William M. Allen and North American's Board Chairman James H. Kindelberger, among others.

Allen and Kindelberger proposed changes in the act which, they said, would restore incentives for efficient performance.

The Ways and Means Committee is considering a two-year extension. Renegotiation has been a thorn in the side of the industry since the present law was enacted in 1951. Rep. Cecil King (D-Calif.) has proposed amendments which would extend the act two years but would:

(1) Provide two additional statutory factors which the Renegotiation Board would have to take into consideration in determining allegedly excess profits.

(2) Make the board subject to the Administrative Procedure Act and provide for appeal to the U.S. Court of Appeals from Tax Court decisions. The Tax Court now has the last word.

• **New standards urged by Allen**—In testimony which won bipartisan praise. Allen urged establishment of "a standard of earnings predicated on the basic profit, plus a reward for efficient performance." The change he proposed, he said, would prevent the Renegotiation Board from making a finding as to excess profits "unless the aggregate of such profits for the fiscal year substantially exceeds the aggregate of the basic profits used by the contracting parties in establishing the basic contract price."

In sum, the Board would have to prove that any "excess" profit did not result from efficiency of the contractor or subcontractor working under incentive fixed-price, redeterminable fixed-price or cost-plus-fee type contracts.

Allen charged that the Renegotiation Act, as it now stands, is obsolete, hinders cost reduction efforts, impedes technological progress and contains vague criteria.

Kindelberger urged modification to incorporate provisions for appeal to

. . . Changes in renegotiation urged by industry

higher courts from Tax Court decisions.

George W. Marsh, vice chairman of the government contracts committee of the National Association of Manufacturers, called renegotiation an "incentive-killing deterrent to the defense effort" and recommended that the act be allowed to die a natural death when it expires at the end of this year.

• **Board chairman strikes back**—Renegotiation Board Chairman Thomas Coggeshall, angered by Allen's charges that renegotiation is hurting the U.S. defense effort, demanded a retraction from Allen and a statement from the committee repudiating his contention.

Despite renegotiation, Coggeshall said, the net worth of aircraft firms has increased steadily and, contrary to statistics offered by the Aircraft Industries Association showing profit levels below general industry, airframe manufacturers were realizing a higher return on investment than other U.S. firms.

It remained for Allen, however, to present one of the most cogent arguments for modification of the act. He testified that four major manufacturers (Boeing, Grumman, Lockheed and North American) made $54,846,892 in incentive earnings from 1952 to 1954, but that the Renegotiation Board took back $64 million.

Allen said he had asked Coggeshall how Boeing was supposed to encourage incentive savings by its employes on a contract when the board merely takes the extra earnings.

"I never got a satisfactory answer," Allen said.

Unfortunately, it did not appear likely that he would. Defense Department counsel, Robert Dechert, calling for a two-year extension of the Act, said new and experimental weapons for which it is difficult to estimate profits make extension even more necessary than before. He added, however, that DOD was willing to go along with any amendment permitting appeal from Tax Court decisions to the U.S. Court of Appeals.

Bell System Lands Boeing 707 Automatically

Under evaluation by Boeing Airplane Co., Seattle, Bell Aircraft Corp.'s automatic all-weather landing system recently brought the 707 in without the pilot touching the controls. Radar locates the airplane and an electronic computer, into which a desirable flight path previously has been fed, takes over and sends the necessary approach corrections to the plane's automatic pilot.

Five-Place, Free-Turbine British Copter Is Test Flown

New British helicopter by Saunders-Roe Ltd., designated P.531, made a successful first flight from Southampton Airport with the company's senior helicopter test pilot K. M. Reed at the controls. Five-place copter, powered by a Blackburn free turbine of undisclosed power, was designed and built by Saunders-Roe as a private venture.

Add AAP Publications: Air Traveler's Directory

Publication of a semi-annual directory called *Air Traveler's Destination Directory*, a unique guide to airports, distances, transportation facilities, hotel or motel accommodations and restaurants, has been announced by Wayne W. Parrish, president and publisher of American Aviation Publications, Inc.

The directory is intended primarily for travelers to and from cities that do not have airline services. It includes an index of more than 3,000 "off-line" cities not ordinarily listed in airline timetables, with data about available air-surface transportation.

An outgrowth of the Official Airline Guide, which has provided airline timetables for cities served by the various scheduled carriers for almost 20 years, the Air Traveler's Destination Directory is priced at $6, will accept advertising. It brings to 17 the number of American Aviation publications and services.

Kincheloe Crashes, Dies on Chase Mission at Edwards

On Saturday, July 26, at approximately 0948 PDT, Capt. Iven C. Kincheloe's F-104 climbed off the runway at Edwards AFB, Calif. Four minutes later the jet had crashed and the man who was to have been one of the first to fly into outer space was dead.

Indications were that there had been a flame-out, that Captain Kincheloe had attempted to restart his engine and, failing that, ejected—too low for his parachute to open. The captain was flying chase at the time of the crash.

Besides holding the world's altitude record for research aircraft—having flown the X-2 to 126,000 feet—the Korean War ace was AF member of the three-man team training to take the X-15 into space.

Feats of Hercules No. **5**

FROM THE SNOWS OF FUJIYAMA TO THE SANDS OF FLORIDA

The Lockheed C-130 HERCULES, now in service with the United States Air Force at Ashiya Air Base, Japan, won its "go anywhere, haul anything" reputation the hard way.

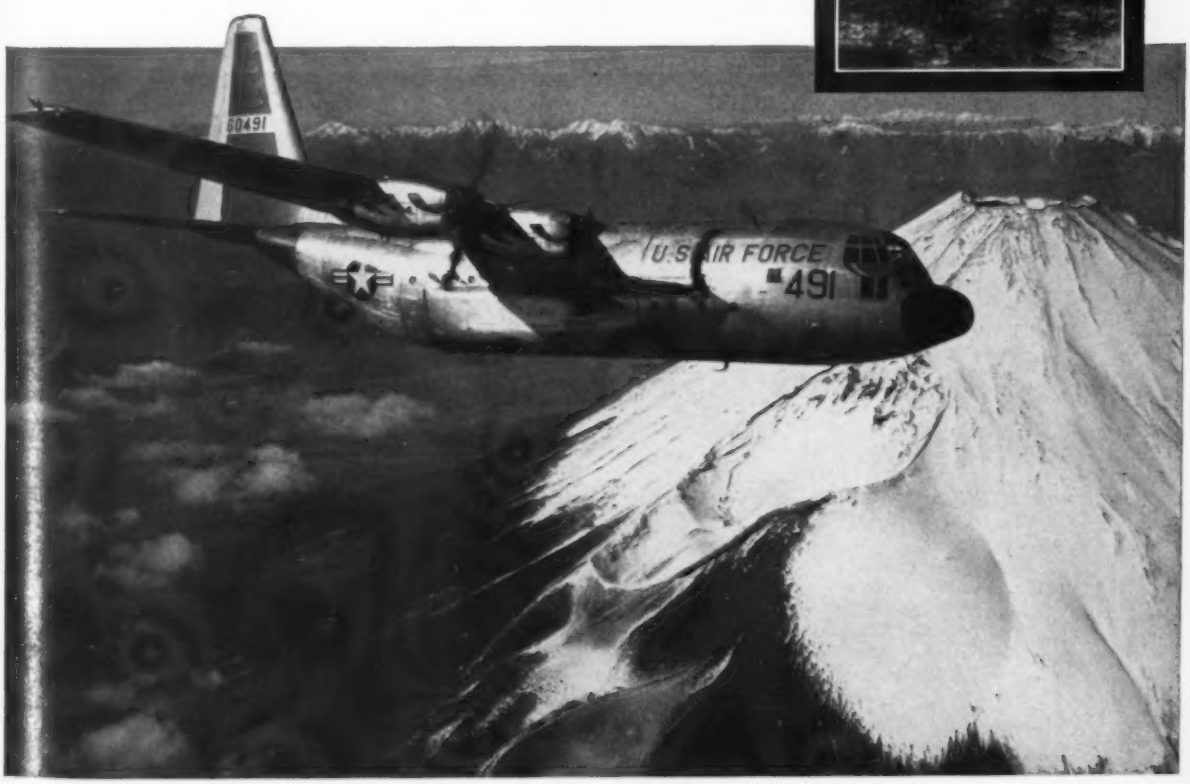
In snow landing and take-off tests at Bemidji, Minnesota, the "Ski-130" HERCULES performed prodigious feats of strength and power. At 124,000 pounds gross take-off weight the ski-equipped HERCULES was airborne in 2,100 feet. Carrying the same payload it landed and stopped in only 1,200 feet.

At Eglin Air Force Base, Florida, the C-130 HERCULES (weighing 110,000 pounds) landed on sand and stopped in 947 feet. Take-offs from sand, with the same load, averaged only 1,500 feet.

This famous aerial "strongman" can carry 90% of all types of missiles now operational with, and under development for, the U.S. Armed Forces. The C-130 HERCULES is now in world-wide service, or scheduled for delivery to: USAF's Tactical Air Command, U.S. Air Forces-Europe, Pacific Air Force, Air Photo and Charting Service, other branches of the U.S. Armed Forces, and the Royal Australian Air Force.

Lockheed *means leadership*

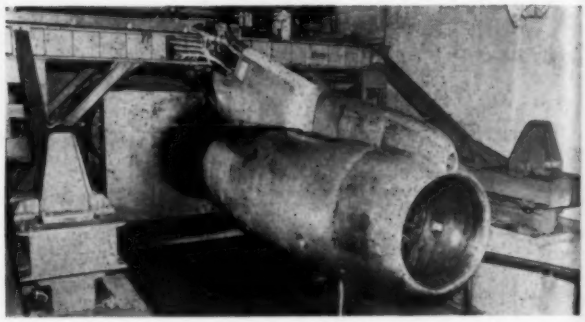
Lockheed Aircraft Corporation • GEORGIA DIVISION • Marietta, Georgia, U.S.A.



—AIR NEWS IN PICTURES—

Test Tunnel Tempest

Speeds to three and a half times that of sound can be reached in the 8 x 7-ft. test section of NACA's Ames "unitary plan" windtunnel at Moffett Field. Here a model of Convair's F-106 jet interceptor is undergoing aerodynamic tests.



Jet Power Package

Slated to power the Boeing 707-420 jet airliners, the Rolls-Royce Conway by-pass engine is undergoing test as a complete package. The test stand measures forward thrust to 20,000 lbs. and reverse thrust to 10,000 lbs. with 0.1% accuracy.

It's Done With Mirrors

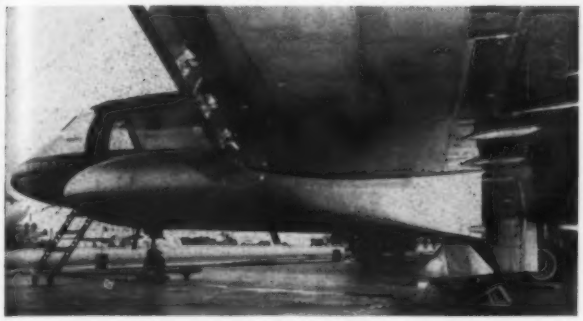
Navy's mirror landing system was used to accelerate Convair F-102A jet interceptor landing-gear load tests at Edwards AFB. Pilot lined up reflection in mirror of battery of lights 60 ft. away on runway with six lights on each side of mirror. Use of system permitted pilot to maintain proper glide path for each of 60 different landing configurations required. Tests reportedly were completed in about a third of the time normally necessary.

STOL with Four Interconnected Props

Breguet 940 STOL, first aircraft of its type to fly with four interconnected propellers, has completed seven test flights in Paris. It has attained altitude of 3,000 ft., remained aloft 15 minutes. Piasecki will distribute plane in U.S. and Canada.

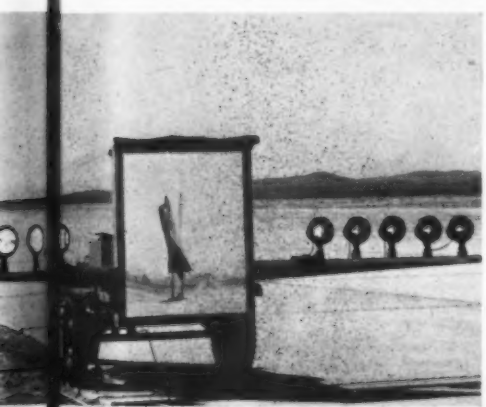
Downdraft Windmill?

Helicopter rotor blade test stand used by Sikorsky Division of United Aircraft Corp. is said to be largest in the world. A 4,000-hp electric motor is coupled to a 60-ft. drive shaft. High power of the dc motor and fact that it is controllable from 0 to 275 rpm permits operation without use of gear reducers.



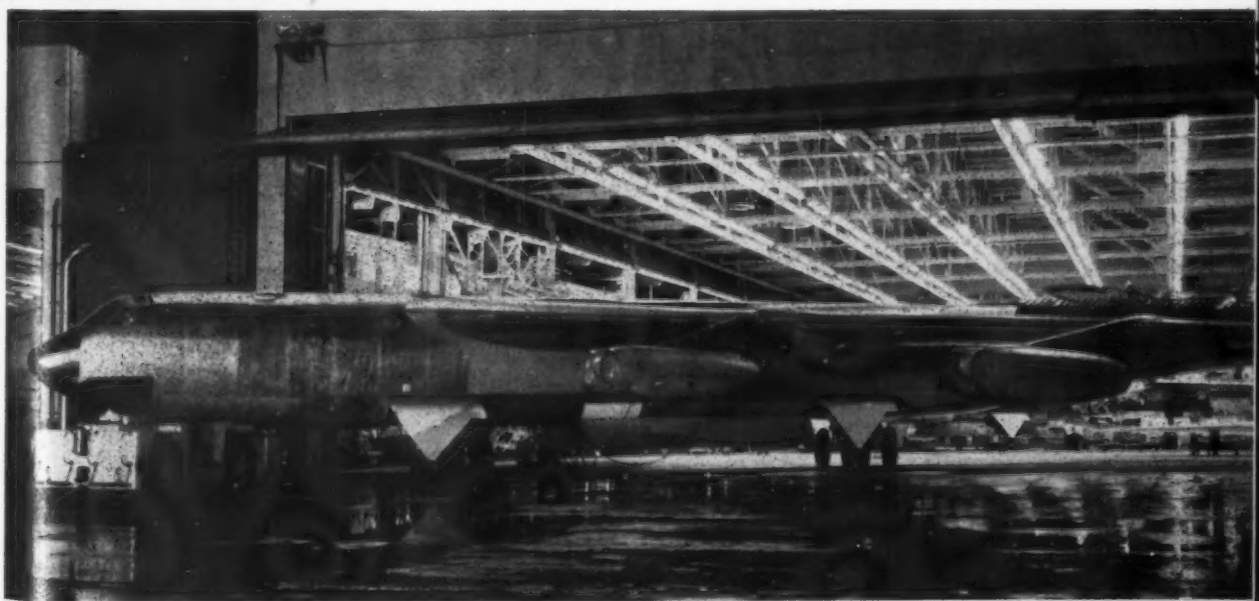
"Slippers" and "Gloves"

With one 300-gal. intermediate-range or "slipper" tank like this under each wing, range of Lockheed's JetStar is said to be increased from a normal 1,730 to 2,280 miles. Larger "glove" tanks extend range to more than 3,000 miles.



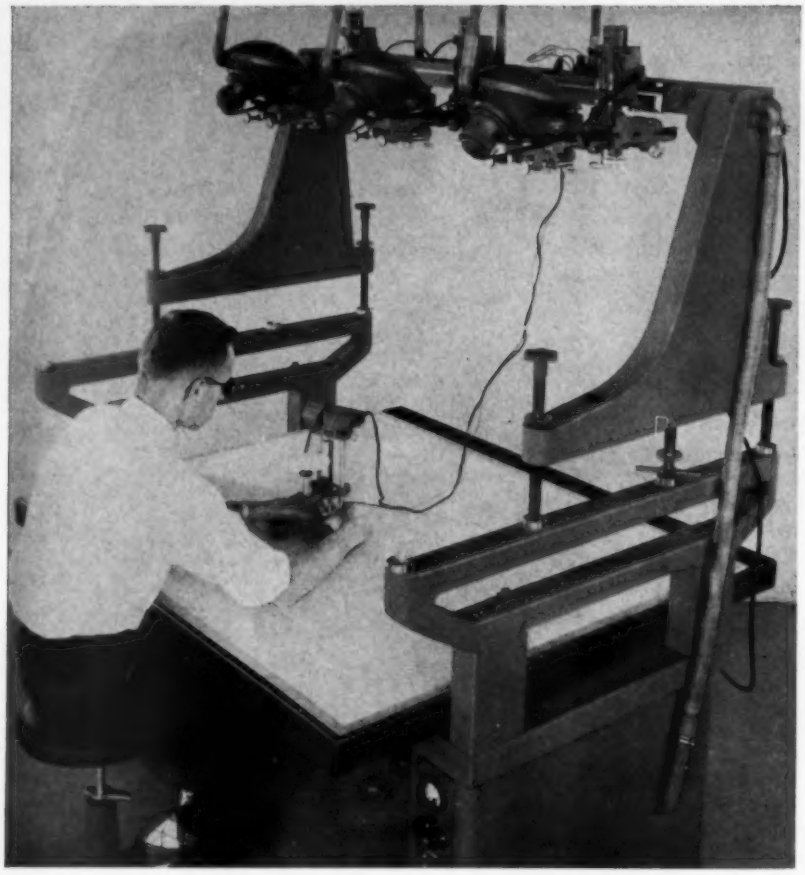
Hazardous Hotshot

"Cook-off" is the term for premature and hazardous explosion of ammunition due to excessive heating in gun chambers. Cornell Aeronautical Laboratory, Inc. is concluding a five-year program on cook-off problems of aircraft-type, rapid fire guns for Army Ordnance. Here, CAL engineers inspect a 20mm machine gun after firing in the lab's underground range.



First B-52G Missile Platform Rolls Out

Eight-jet B-52G missile platform bomber is capable of crossing oceans and returning to U.S. bases without refueling. Newest Stratofortress carries two GAM-77 air-to-surface missiles that can be released hundreds of miles from targets, is described as U.S. Strategic Air Command's "Sunday punch." Missiles are merely "extras" added to prime bomb load.



Plotter Produces Large-Scale Maps

The Balpex 760 aerial plotter, manufactured by the Bausch & Lomb Optical Co., provides 5X enlargement of the original aerial negative. The new instrument is reported to be well-suited for highway and waterway mapping projects where large-scale accuracy and detail are important.

Circle No. 104 on Reader Service Card.

Tower Sprayer

Developed by Mitchell, Lewis & Staver Co., unit is designed specifically to enable servicing personnel to apply glycol to the deicing surfaces of large aircraft. Working deck of the detachable tower is approx. 10 ft. high and is supported on a three-wheel carriage which also mounts a 110 gal. tank and piston pump.

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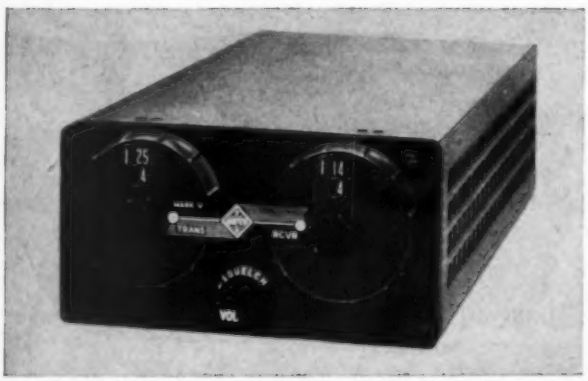

All-Channel VHF Communications Unit

Developed by National Aeronautical Corp., Narco Mark V is said to be first all-channel unit to sell for less than $1,000. Measuring 6½" x 3" x 12", 90-channel crystal-controlled transmitter covers frequencies between 118 and 126.9 mc. Receiver covers 190 channels for frequencies between 108 and 126.9 mc. Unit weighs 9½ lbs. and has transmitting power of 5w.

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Cruise Control Instrumentation

Designed and built by The W. L. Maxson Corp. for the U.S. Navy, W/delta meter is said to compute and display ratio of instantaneous aircraft weight to altitude. A silicone transistor amplifier is used which, according to the manufacturer, has a successful reliability test record of 8,000 operation hours under environmental conditions.

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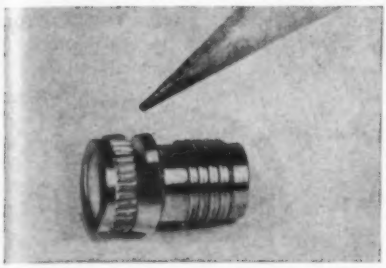


Instrument Panel Lights

New Color-Lite receptacle that produces a small, flat wedge of light, required for illumination of aircraft instruments, is being produced by The Sloan Co. Available in 55 body and type configurations to fit all panel illumination applications. Light uses standard No. 327 and 328 type bulbs.

Circle No. 112 on Reader Service Card.

Explosive Valve

The Conax SEV-22 explosive valve has an envelope size of 2¼ x 1 x ¾ in. and weighs only 2 oz. It is a dead-tight, shut-off valve for long or short time storage of gas or liquid under high pressure with a maximum operating pressure of 6,000 psi and a proof pressure of 10,000 psi. Temperature range is from -65°F. to +160°F. One ampere electrical current is all that is required to fire the explosive squib and open an unobstructed flow passage, from inlet to outlet ports, with an equivalent orifice of 5/32 in. diameter in .002 seconds.

Circle No. 105 on Reader Service Card.

. . . Product Briefs

• **Lube and scavenge pump**—Designed by Lear, Inc. for nuclear type engines, unit has four lube elements, three scavenge elements and pumps 72 gpm at 75 psi with MIL-L-7808C oil at 350°F, according to the manufacturer. Pump housing is constructed of ductile iron and the gear housings are of Meehanite, which allows unit to be used in temperatures from −65° to 1,000°F. Rotating seal prevents leakage between lube and scavenger sections. Each lube element incorporates a discharge check valve to prevent leakage in excess of 1,200 cc in 72 hrs.

Circle No. 108 on Reader Service Card.

• **Centrifugal blower**—The Electro Products Div. of Western Gear Corp. has designed a centrifugal blower with a 115v, 60-cycle, single-phase motor which turns approximately 3,400 rpm drawing 3.5 amps. It operates with an 8 mfd. capacitor. Measuring 11.75″ x 7.3″ x 9″, unit is said to deliver approximately 285 cfm at 1.2″ of back pressure. Tip speed of the squirrel cage is given as 4,230 fpm.

Circle No. 109 on Reader Service Card.

• **Torque driver**—Three designs of "Safe-Torque" tools by Scully-Jones and Co. have work capacities of 0 to 25 inch/lbs.; 0 to 60 in./lbs. and 0 to 96 in./oz. The two larger sizes have a calibrated torque adjusting screw at the top while smaller tool uses lines scribed on projecting drive spindle. Largest driver is used in conjunction with a ratchet wrench.

Circle No. 110 on Reader Service Card.

• **Instrument computing package**—AiResearch Div. of The Garrett Corp. has developed a compact lightweight instrument computing package for the McDonnell F4H jet fighter. Computing elements provide data for operation of the airplane static pressure system, autopilot, armament system, navigational computer, surface control, induction air control systems and cockpit indicators. Completely transistorized, unit is designed for operation in temperatures as high as 250°F. A test set has also been developed for checking out the entire system.

Circle No. 111 on Reader Service Card.

• **High temperature alloy**—Trade named "Rene 41" by General Electric Co., new nickel base, titanium-aluminum hardened alloy is designed for use in severely stressed jet engine components, requiring high temperature strength. Capable of use up to the 1,800°F range, strength tests show that the .2% offset yield strength at 1,200°F is 125,000 lbs. per square inch. The 100-hour stress rupture strength at 1,600°F is 25,000 psi, the company says.

Circle No. 100 on Reader Service Card.

• **Non-slip floor covering**—Non-sparking, safety covering for aircraft applications by Minnesota Mining and Manufacturing Co. is said to assure positive footing even when exposed to water or oil. Material weighs 2½ oz./sq. ft. and has an overall thickness of 45-50 mils. "Scotch-Tred" brand resilient covering is available in beige, gray and black and is supplied in standard 96′ rolls, 4″, 6″, 12″, 18″, 24″ and 36″ wide; in ¾″ x 24″ strips and in 9″ x 9″ tile.

Circle No. 101 on Reader Service Card.

• **Foam splicing adhesive**—Quick-drying adhesive known as Bondmaster R275, by Rubber & Asbestos Corp., incorporates a synthetic polymer which is said to bond almost all type of urethane foams, natural latex and sponge. Applied by brush, spray gun, hand or mechanical roller equipment, product is claimed by manufacturer to have greater yield-per gallon and to be tack-free in 4 to 6 hours.

Circle No. 102 on Reader Service Card.

• **Portable riveting tools**—Lightweight unit designed by "Pop" Rivet Div. of United Shoe Machinery Corp. for both assembly operations and product maintenance and repair. Unit consists of an air-hydraulic intensifier, a 2-lb. riveting gun capable of pulling monel rivets up to 3/16″ size. Intensifier, which weighs 2 lbs. 3 oz., connects directly to shop air outlets and is said to operate at pressures of 70 to 100 psi. At minimum operating pressure, pistol ratios boost this to 2,700 psi.

Circle No. 103 on Reader Service Card.

• **Bonanza tip tanks**—Introduced by Safe Flight Extenders Co., new tip tanks are said to increase range of Beech Bonanza aircraft by more than 440 miles. With a capacity of about 12 gals. each, tanks and gas lines can be installed in some six hours without rework of the airplane, company says. Uses existing fuel selector valve.

Circle No. 114 on Reader Service Card.

• **Miniature hydraulic cylinders**—Said to be the smallest hydraulic cylinders available on the market, compact units by MO-BAR Hydraulic Sales, Inc. are manufactured in sizes from 3/8″ to ¾″ diam. with stroke range from ½ to six inches.

Circle No. 115 on Reader Service Card.

• **Personal paging device**—Electronic personal calling system developed by AC Spark Plug Div. of General Motors is designed for use in areas such as those where noise limits effectiveness of loudspeakers. A battery-powered, transistorized radio receiver (about the size of a cigarette pack) vibrates in the carriers pocket when energized and tells him to call the page operator on the phone. Page operator's transmitting console can handle up to 380 receivers.

Circle No. 116 on Readar Service Card.

—LITERATURE—

• **Statistical charting**—16-page booklet lists seven steps to good charting and outlines various types of charts and graphs generally used in business and industry. Included are discussions of horizontal and vertical bar charts, line or time series charts, pie and area charts. Company also offers catalog of its Graph-A-Plan system and kits for preparation of charts and graphs. Labelon Tape Co., Inc.

Circle No. 175 on Reader Service Card.

• **Jet engine turbostarter**—16-page illustrated bulletin describes the AS-18 fuel/air combustion turbostarter, a completely automatic system for all large aircraft gas turbine engines. Bulletin contains description of system operation, design features, components, installation and service and starter envelope requirements. General Electric Co.

Circle No. 176 on Reader Service Card.

• **Mach charts**—Two charts available free of charge, are designed to assist engineers requiring Mach-Altitude-Temperature information. One chart compares Mach number with altitude, and also gives the ram temperature rise. Second chart shows relationship of Mach number and temperature. G. M. Giannini & Co., Inc.

Circle No. 177 on Reader Service Card.

• **Chemical milling of casting**—Design bulletin describes first breakthrough in chemical milling of cast parts. Includes information on tolerances attainable, suitability, overall and controlled area reduction and surface finishes that can be expected when casting such metals as aluminum, magnesium, mag-thorium, steel and other cast alloys. United States Chemical Milling Corp.

Circle No. 178 on Reader Service Card.

• **Metal charts**—Two charts—one showing the melting points of various metals, both in Fahrenheit and Centigrade scales, and the other showing densities of metals, grouped into heavy, medium and light classifications, are available from Metals and Fabrication Div., Fansteel Metallurgical Corp.

Circle No. 179 on Reader Service Card.

• **Torque/rpm chart** — Easy-to-read chart tabulates ounce-inch torque versus rpm at stated horsepower. Engineering data given ranges from 1/2,000 hp to 1/3 hp and from 1 to 14,000 rpm. John Oster Mfg. Co.

Circle No. 180 on Reader Service Card.

• **Motorized devices**—9-page catalog describes company's instrument vibrators, dc generators, planetary gear reductions, clutches, rate gyros, differentials, actuators, timers and power positioners, designed to meet various MIL specs. Globe Industries, Inc.

Circle No. 181 on Reader Service Card.

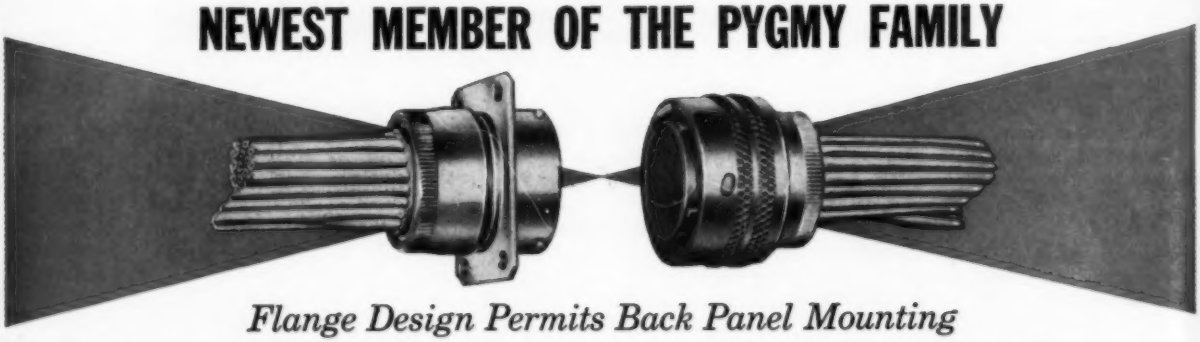
• **Two-way radios**—19-page illustrated booklet is a reference primer on the entire field of 2-way communications. A compilation of typical users is listed. Motorola Communications & Electronics, Inc.

Circle No. 182 on Reader Service Card.

• **Electric cables**—16-page booklet details properties of Nepco-Sil silicone rubber insulated cables, said to be particularly suited to extreme temperature applications (to 200°C) and to conduit installations where load facilities make it impractical to increase copper sizes. National Electric Products Corp.

Circle No. 183 on Reader Service Card.

BENDIX "SP" ELECTRICAL CONNECTOR— NEWEST MEMBER OF THE PYGMY FAMILY



Flange Design Permits Back Panel Mounting

The new Bendix* "SP" connector uses an alumilite finish offering superior resistance to abrasion and corrosion. Flange size and location designed to permit back panel mounting with No. 6 screws. Other outstanding features of the new connector are similar to those of the well-known "PT" type.

- **Safety wiring completely eliminated**
- **Mechanically assisted coupling and uncoupling through cam action**
- **Closed entry, probeproof socket contacts**
- **Visual and audible inspection of coupling—perfect for "blind" locations**
- **Three-point bayonet lock; perfect axial alignment of mating parts at all times**
- **Constant spring tension behind mated insert faces**
- **Five-key polarization—positive protection against mismating or cross-plugging**
- **Resilient inserts, performance-proven in millions of Bendix connectors**
- **Heavy gold plating over silver on all contacts**
- **Both pin and socket contacts machined from high-grade copper alloy**
- **Machined bar stock or impact-extruded shell components**
- **Alumilite finished to resist abrasion and corrosion—no thread wear—easily withstands 500 hours of salt spray**

With the introduction of "SP" Pygmy Electrical Connectors, Bendix again demonstrates its well-known policy of anticipating the needs of industry.

Export Sales and Service: Bendix International Division, 205 East 42nd St., New York 17, N. Y.
Canadian Affiliate: Aviation Electric, Ltd., 200 Laurentien Blvd., Montreal 9, Quebec

*REG. TRADEMARK

Scintilla Division
SIDNEY, N. Y.

Bendix
AVIATION CORPORATION

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It's Tops

"Down Under"

Allison Prop-Jet-Powered Lockheed Electras
ordered by all 4 Airlines in Australia and New Zealand

Everything is big "down under," including the growth rate of the national economies. And all four airlines in Australia and New Zealand – Ansett/ANA, TAA, Qantas and TEAL – are staying in the forefront of national progress. They've *all* ordered Allison Prop-Jet-powered Lockheed Electras equipped with Aeroproducts propellers, the fastest, most modern, most efficient prop-jet-powered airliners ever flown.

These new airliners will carry passengers from city to city, coast to coast, country to country faster, smoother, more comfortably than ever before. And that means a lot of things will get done a lot faster – a specialty in Australia-New Zealand.

The unanimous acceptance of Allison Prop-Jets "down under" brings to 14 the number of domestic and international airlines which have ordered Allison Prop-Jet-powered Lockheed Electras. And the Royal Australian Air Force has also ordered 12 Allison Prop-Jet-powered Lockheed C-130A Hercules transports.

GM
GENERAL MOTORS
AIRCRAFT POWER

ALLISON DIVISION OF GENERAL MOTORS, Indianapolis 6, Indiana

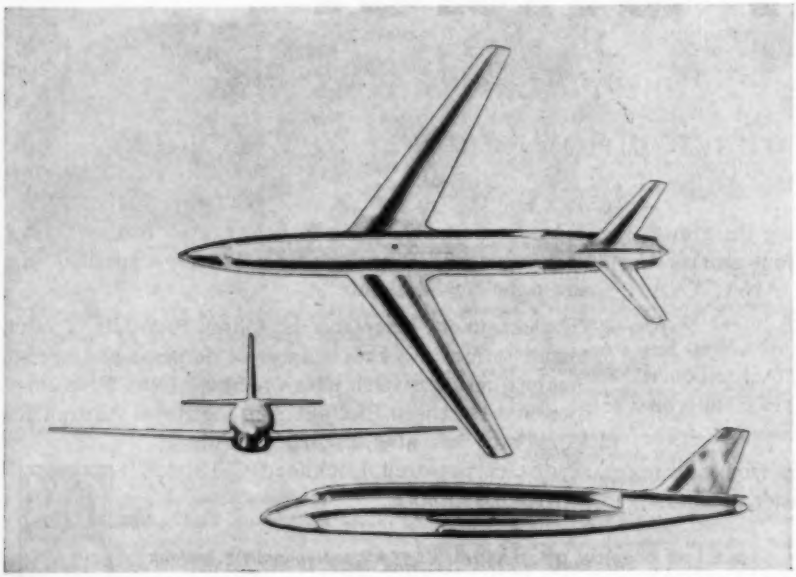
ALLISON PROP-JET POWER

1944—Rendered obsolete as more knowledge was gained with jet fighters, this concept of a small, twin-engine aircraft was the first of a series of jet transport design studies conducted by Lockheed Aircraft Corp. continuously since before the end of World War II.

The Birth of a Jet-Powered Transport

Fourteen years and $7 million ago, Lockheed Aircraft Corp. launched a series of jet transport design studies which evolved rapidly into a philosophy now flying in the form of the company's JetStar utility jet transport. This is the concept of mounting the engines in pods attached to the aircraft's aft fuselage.

The advantages claimed for this engine arrangement were discussed at the national summer meeting of the Institute of the Aeronautical Sciences last month by C. L. (Kelly) Johnson, vice president in charge of Advanced Development Projects for Lockheed. But, in addition, Johnson revealed for the first time the steps which led to finalization of this concept and gave details of several jet transports which rolled across the drawing boards along the way.



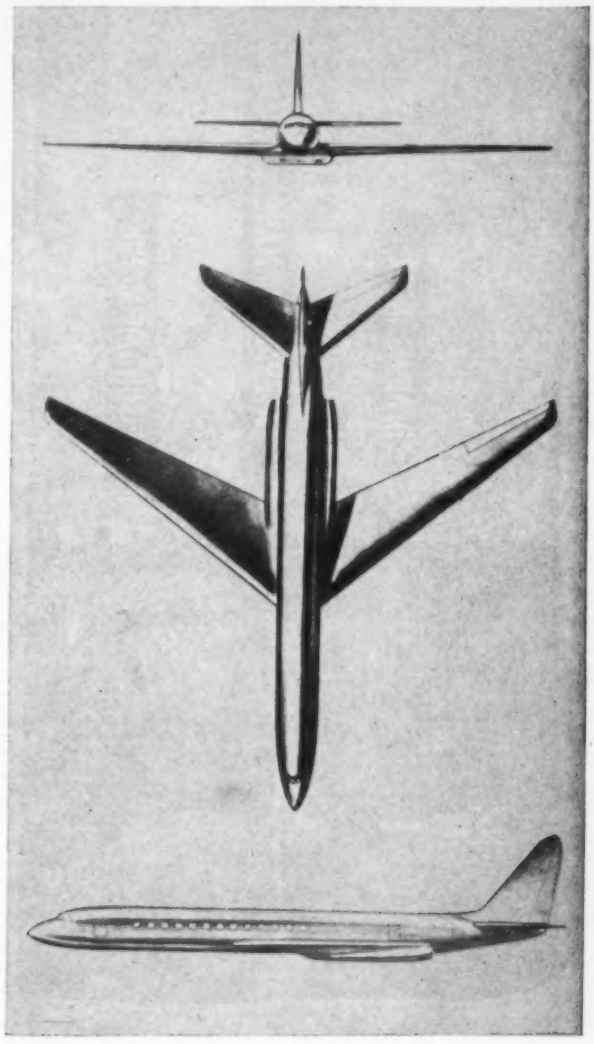
1947—Lockheed's L-179-1 would have had four turbojet engines buried in the fuselage. Two mounted forward were to exhaust under the wing. Two installed behind the cabin and using boundary layer control to obtain proper ram were to exhaust out of the aft end. This concept was discarded since it was felt that noise, vibration and other problems would develop with the front engine installation.

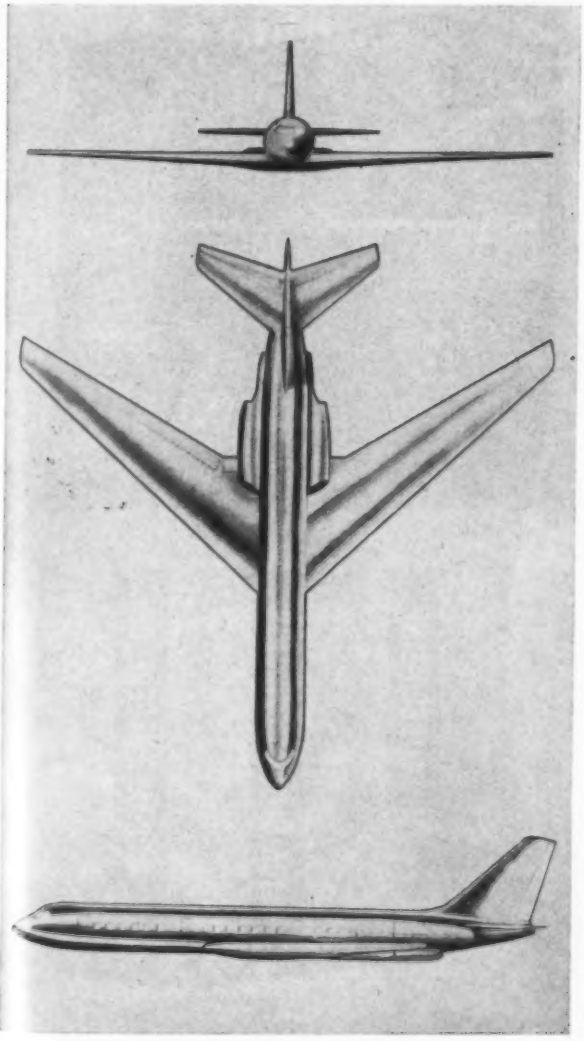
Almost from the start, Lockheed designs featured swept wings to give near-Mach 1 cruise speeds and carry a large volume of fuel. Fuselage mounting of the engines also came early in the program, and the problem of just where to locate them was the guiding influence in the evolution of these jet transport designs. Various solutions were drawn up only to be discarded.

The biggest and most refined member of this family was the Model L-193, but it never got further than the mock-up stages. Johnson says that many airlines, including Pan American World Airways and Air France, were much interested in the big jet transport. However, no orders were forthcoming and the company elected to drop the project rather than take the financial risk that would be involved with further development.

So the JetStar became the first hardware to result from a gleam in the eyes of the company's engineering department several years ago. But there's no reason to suppose that the family likeness won't appear again.

1948—First sign of the shape of things to come was apparent in the next version of the L-179 series. Here, all engines were to have been mounted in a single pod attached to the fuselage. The pod was designed with four heavy longerons to act as firewalls and to protect the engines in case of a belly landing. Fear that structural failure of one engine might result in a chain reaction which would destroy the whole powerplant system led to elimination of this arrangement.





1952—Concept of mounting engines in pods attached to the aft fuselage took final form in Lockheed's Model L-193. The single, four-engine package featured in the L-179 was split into two twin-engine pods. Available figures indicate the 280,000-lbs. gross weight jet transport was designed to carry 100-120 passengers 2,500-3,000 miles at 550-600 mph.

(Continued on page 34)

BANK INDEX
VERTICAL PATH REFERENCE
ATTITUDE REFERENCE
HEADING INDEX
LATERAL COMMAND
PITCH COMMAND
HDG SET
LUBBER LINE
GLIDE SLOPE DEVIATION
AIRCRAFT REFERENCE
SELECTED COURSE INDEX
COURSE DISPLACEMENT BAR
RECIPROCAL INDEX
SET

LEAR SITUATION INDICATOR (bottom)

You'll love L-I-F-E* *even more—*

"married" to the L-5 *AUTOPILOT*

MEETS ALL TSO REQUIREMENTS FOR AIRLINE OPERATION

Put LIFE in your panel—with L-5 at the controls... and you'll *really* be "flying easy"... *and safest, too!* You'll be "on-top" of the flight every second—take-off to touchdown... ***here's flight operation at its best!*** L-5/LIFE gives you ***reliable all-weather capability*** ... simplifies IFR flight—makes ILS approaches a cinch—minimums lower—missed approaches a thing of the past. No strain to stay "on-top" of the flight—you simply press mode buttons and "watch the flight" on LIFE, while the L-5 smoothly and precisely intercepts and "locks" on the selected beams... even compensating automatically for cross-wind. ***You must fly it*** to fully appreciate its superiority—***the cost is substantially lower, too.*** Write, wire or phone for a demonstration at *your* home base.

3171 South Bundy Drive, Department L-5, Santa Monica, California **LEAR**

L-5/LIFE AUTOPILOT CONTROLLER

SIMPLE PUSH-BUTTON CONTROL

HEADING MODE—provides smooth automatic maneuvering onto a selected heading with correct bank and intercept approach angles.
CAPTURE MODE—introduces gradual interception and "capture" of selected VOR or Localizer course.
TRACKING MODE—adds automatic cross-wind compensation to maintain center of VOR or Localizer course after "capture."
ALTITUDE MODE—controls airplane to maintain altitude at barometric value existing when mode is selected.
GLIDE SLOPE MODE—commands autopilot to intercept smoothly and "lock" on the Glide Slope.

LC-52

* LEAR INTEGRATED FLIGHT EQUIPMENT *plus* L-5 AUTOPILOT

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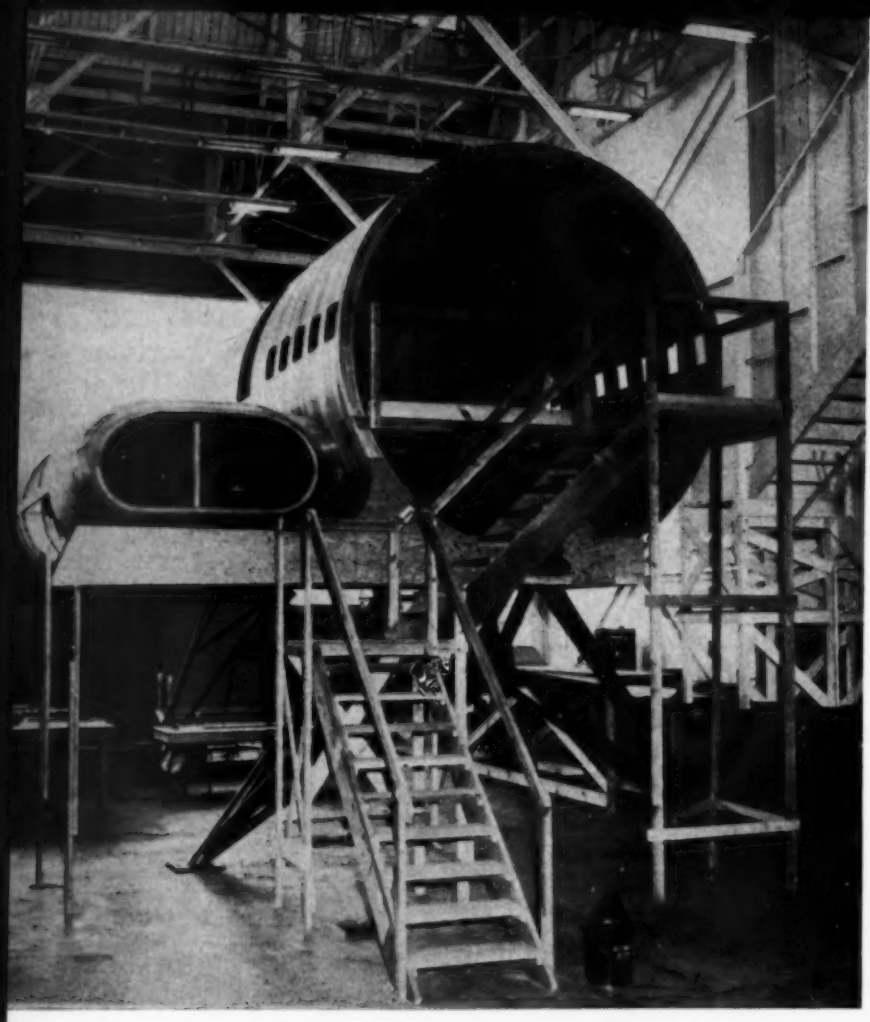
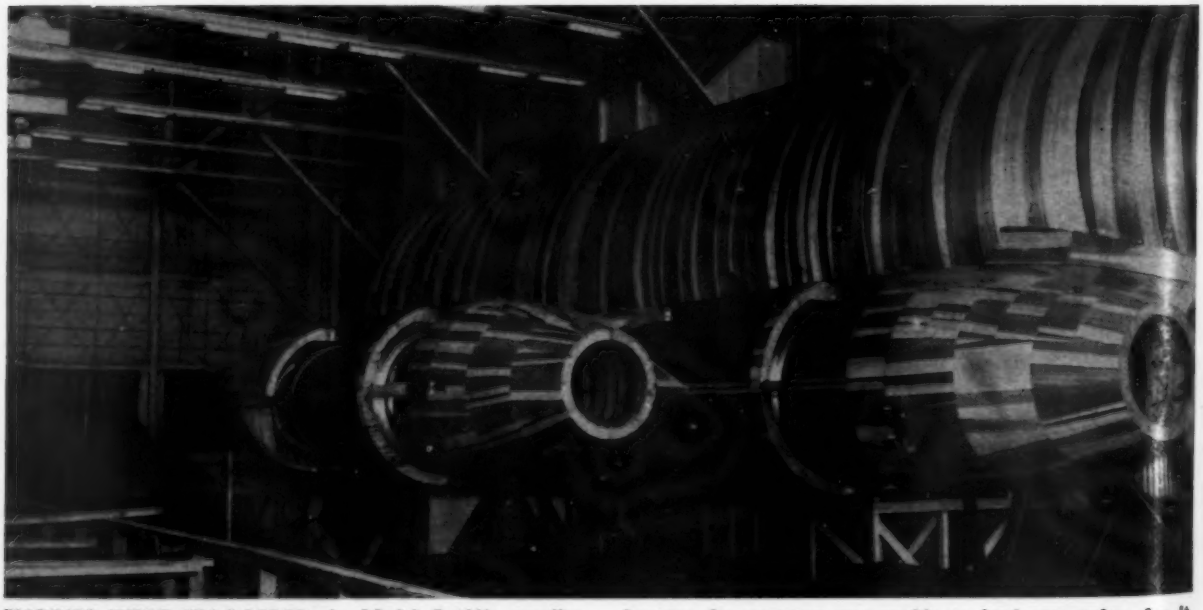
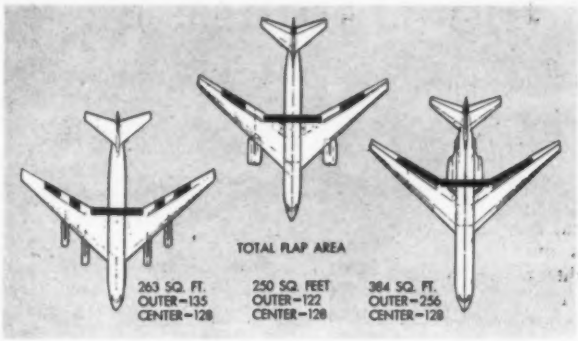


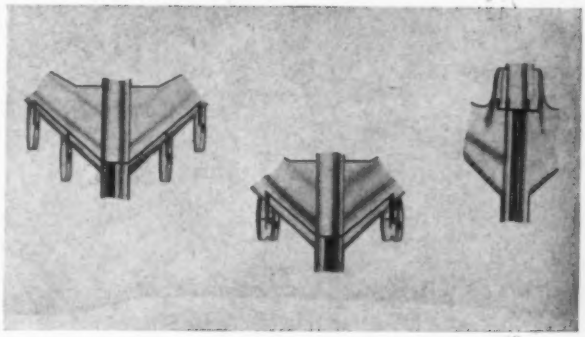
MODEL L-193'S ENGINE INLETS were located over wings to reduce chances of foreign object damage, improve air flow, etc. Power was to have been supplied by four Pratt & Whitney J75s or four Wright J67s.



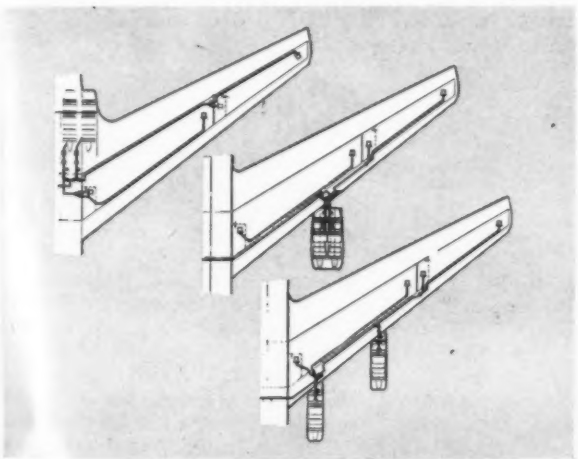
ENGINES WERE STAGGERED in Model L-193's nacelles and were located aft of the pressurized section of the fuselage. This particular aircraft never went beyond the mock-up stage because the company was unable to land any orders for it. But the design concept is incorporated in the JetStar, Lockheed's utility jet transport, and has proved successful.



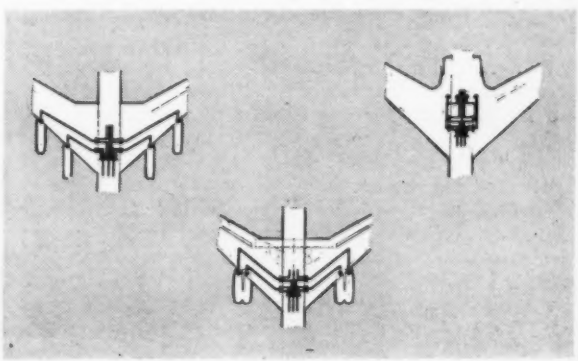
MORE FLAP AREA, greater lift and less drag are obtainable with fuselage-mounted engines than with wing pod installations, according to Lockheed.



RELATIVE COMPLEXITY OF ENGINE CONTROL systems is depicted in schematics presented by Lockheed at the recent IAS meeting. Relief from problems due to flexing of wings is added advantage with fuselage-type engine installations, the company says.



LESS RISK OF FIRE in the event of a belly landing is one of the advantages claimed by Lockheed for fuselage-mounted engine installations. "Crash" tests conducted with models showed fuel from ruptured tanks was much less likely to come into contact with hot engines or sparks from a shorted electrical system.



REDUCTION IN WEIGHT and complexity of electrical systems is claimed for fuselage-mounted engine installation. Lockheed estimates the system on the left would require 406 lineal ft. of bus, an equivalent system (center) would involve 285 ft., and the fuselage mounted engine system (right) would take only 96 ft.

MATS: The Case for the Defense

Its mission has created much misunderstanding, but basically it's the U.S.'s ever-ready cargo fleet

By Betty Oswald
Defense Editor

The Military Air Transport Service, just a little more than 10 years old, is many things to many people. To the Defense Department, it provides or should provide constant airlift readiness to move troops, technicians and critical supplies for the Army, the Strategic Air Command and for such other parts of the Defense Department as require its services.

To the civil air transport industry, MATS, sometimes known as the "people's airline," constitutes a major threat to economic life of no mean proportions, even thought it simultaneously recognizes that there is no substitute for MATS in time of war or national emergency. To the Army, MATS has never provided airlift of the kind and in the quantities its planners want to fight the mobile wars of the future.

As far as the airlines are concerned, the question is one of economic survival. The issue is how the MATS airlift is to be used in periods between national emergencies: whether its training of crews, cargo handlers and the like must be conducted in a fashion to create real competition with both the scheduled and unscheduled airlines.

• **Battle for priority and prerogatives**—To the Army, it's a battle for priority and prerogatives. Since airlift capability is inadequate to handle all comers, should MATS spend its effort in developing the big troop carriers which the Army says it needs to meet the threat of limited wars, or should it give first priority to airlift which would be required to support the Strategic Air Command in time of war?

Frequently the arguments have generated more heat than logic. What are the facts? In the case of the recurring battle with the civil air transport industry and MATS, the principal issue is one of economics. In the case of the argument with the Army—an argument which has led to the suggestion that the Army develop its own air transport service, the issue is "How much is enough?" And the matter of what kind of a war the Joint Chiefs of Staff think might be fought in the future and what kind of airlift might be needed to support such a war.

MATS' troubles stem basically from its mission, which is officially stated as follows: "The Military Air Transport Service is a worldwide air route command whose primary mission is to maintain in being the military transport forces, en route bases and air routes to meet the approved wartime requirements of the Department of Defense as established by the Joint Chiefs of Staff. MATS peacetime operations will be conducted to maintain this state of readiness, and in pursuance thereof MATS will airlift cargo, troops, patients and mail according to priorities established by the Joint Chiefs of Staff."

• **Basically a cargo fleet**—In its relations with the civil air transport industry, Lt. Gen. William H. Tunner, the new MATS commander, states the case this way: "The Military Air Transport Service fleet as it exists today is basically a cargo fleet. All aircraft assigned to MATS for strategic air transport purposes are cargo aircraft with cargo doors and cargo floors. Except for the C-133, all aircraft in MATS have a convertibility characteristic which permits their use as troop carrier aircraft and aeromedical evacuation aircraft."

"In our emergency planning, the MATS fleet is essentially utilized to satisfy the cargo requirements of the Department of Defense and the CRAF (civil reserve air fleet) aircraft are utilized to satisfy the emergency war plan passenger requirement. Except for the movement of certain combat force personnel during the initial phases of an emergency, many of the personnel airlift requirements can be satisfied by the utilization of CRAF aircraft, whereas the deficiencies that exist in our emergency planning are all in the cargo area. This deficiency exists notwithstanding the fact that MATS uses in CRAF all the four-engine cargo aircraft in the civil industry that are capable of operating over water."

Stated this way, there can be no serious argument about MATS' operations. The trouble comes from the use of those aircraft in peacetime. As General Tunner puts it, "For economic reasons, we use the capacity of the transports flown by MATS, in peacetime training for the movement of the Department of Defense traffic. This traffic is moved as a by-product of MATS training.

"The Department of Defense, in peacetime, moves a substantial number of passengers and MATS, because of the versatility of the aircraft, can satisfy this movement in peacetime while still reserving the basic cargo capability required in war." It is this part of the operation which AF officers and the Defense Department find "the hardest to justify" in peacetime.

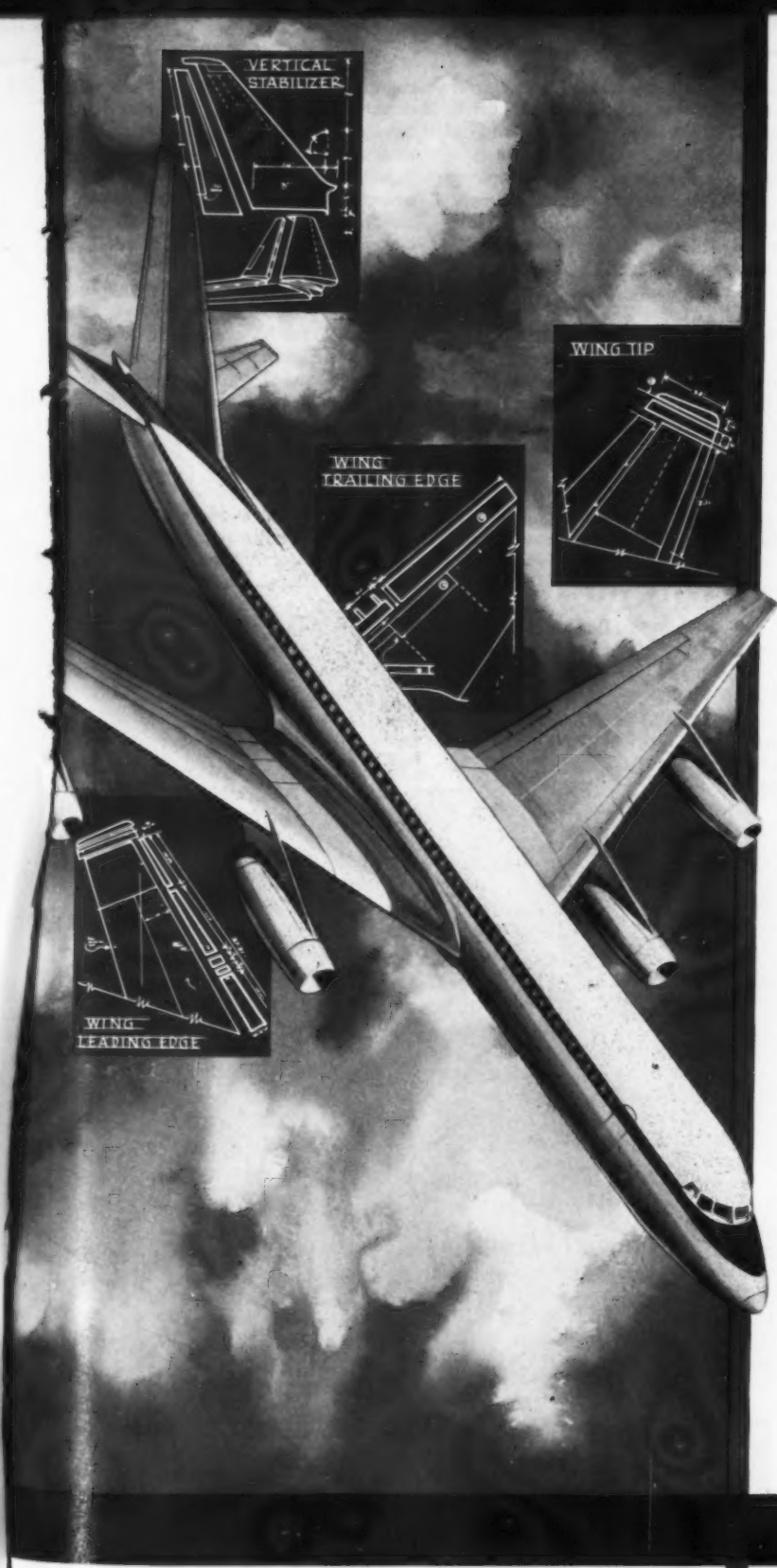
The difficulty in justifying this operation and the mandate of the Congress has resulted in a plan to augment MATS service with $84 million in private contracts in fiscal 1959. And Gen. Tunner indicates that additional funds may be required as a result of the current deployment of heavy troop carrier aircraft for the support of the British in Jordan and the United States forces in Lebanon.

In addition, MATS will support the Air Materiel Command's Logair System and the Ballistic Missile Airlift, with about $21 million in contracts with private carriers. This does not, of course, take into consideration current movement of big ballistic missiles, including Thor and Jupiter, by MATS C-124 and C-133 aircraft from manufacturing plants to Cape Canaveral test range and later to Camp Cook (just renamed Vandenberg Air Force Base) and other ballistic missile locations.

The MATS fleet at this time is composed of C-54s still phasing out; the C-97 Stratocruisers first acquired in 1949; the C-124s and R6Ds acquired in 1951; the C-118s in 1952; the R7V in 1953; the C-121 in 1955; and now the new C-133 turboprop. This is the fleet that the MATS commanders claim is indispensable come a war or another national emergency. It's the training of this fleet in peacetime which concerns it and the civil air transport industry.

The Army's story is a different one. It doesn't like to end up behind SAC as a claimant for MATS services. It wants to be sure that its Pentomic Divisions with the equipment they need may be moved within a few hours to where they may be needed to put out local or "brush fires." Requirements looking ahead are for an aircraft capable of moving 600 to 700 troops 3,000 miles or more without refueling and landing on relatively unprepared airstrips.

• **Suggests meeting with airlines**—To



Crosley helps CONVAIR JET 880 to keep a date

Soon the Convair Jet 880 will take to the skies as one of the world's fastest jetliners. Sleek, smooth and strong—the luxurious jet will race the sun at 615 miles per hour!

Convair has chosen Crosley to design and produce many of the 880's components. And while actual construction progresses, a Crosley team of engineers is "on site" at the plant to help insure speedy transition from design to production to maiden flight date.

Crosley's contributions to airframe construction include all of the conventional types of assembly in addition to the newer methods of honeycomb, metal bond, and chem-milling. Equally important are Crosley's contributions to safety in flight, represented by such developments as Volscan—the electronic air traffic control system, or airborne navigation and communications equipment, embodying advanced concepts of electronic application.

For further information on Crosley's airframe and other capabilities write to the Vice President—Customer Relations, Avco Manufacturing Corporation, Crosley Division, 1329 Arlington Street, Cincinnati 25, Ohio.

Avco // Crosley

meet the complaints of the civil air transport industry, Gen. Tunner is suggesting a series of meetings, which will point out among other things: 1) that MATS has pioneered many of the techniques now standard operating procedures on the airlines; 2) that many of the aircraft now used were first developed for the military; and 3) that MATS will continue to cooperate. Effort will be made to find a sane working basis by which the air carriers and MATS can live together.

However, the real solution of both the problems of the airlines and of the Army may lie in another direction. AF officers say the major shortage of airlift is in the cargo area. Giving more business to the civil airlines will not provide the incentives to develop needed aircraft, according to high Air Force officers. This same kind of aircraft is what the Army says it needs to lift its troops and their equipment in time of small wars.

What is the answer? A continuation of the battles that have been fought? No, Congress won't allow them to continue. Besides, they are frustrating in the extreme to the Air Force officers involved and to the MATS officers and pilots.

The answer could lie in the upgrading of air transport as an instrument of national policy. Air transport generally and cargo transport in particular are now considered for use mainly in emergency conditions. Yet MATS claims to have proved that it is cheaper in terms of national resources to move high-cost items by air than by surface shipment. It points out that movement of aircraft engines from factory to using units overseas requires approximately 45 days by surface transportation. Air transport provides for the movement of those engines to using points in approximately five days, with a resultant reduction of the inventory and initial procurement of engines of dramatic proportions.

A Rand Corp. study made shortly after the Korean War indicates that savings would be even more drastic if airlift were permitted to take its place side-by-side with other forms of transport. The need is for new and more advanced types of cargo-carrying aircraft—to meet the need of the civil airlines, the military and particularly the Army.

The Rand study points out that development of new ships is subsidized

Why MATS?

At MATS headquarters, Scott AFB in Illinois, C-124 unloads Thor missile.

The primary mission of MATS is to place troops, supplies and outsize equipment anywhere in the world in support of its strike forces, as directed by the Defense Department. A major part of this job is to support the Strategic Air Command.

This means airlift of SAC personnel, unit supplies and equipment from a home station to a temporary

Air evacuation service halved the death rate from wounds in Korean war.

duty base. It also means en route support provided—as the name implies—along the way to a combat base.

It also means the airlift of supplies and equipment to supply Army forces, in accordance with priorities established by the Joint Chiefs of Staff.

Other airlift operations have been and are in support of national policy, such as the Berlin, Hungarian and now the Mid-East Airlift.

Secondary functions of the MATS include:

(1) Air Evacuation Service. They bring in high priority cargo and personnel and they fly wounded out. In Korea, 90% of all evacuations were by air, cutting in half the death rate from wounds.

(2) Air Weather Service providing meteorological data on a global scale to both the Air Force and the Army. Current organization is 11,000 men manning 330 weather stations in 26 countries.

Airways and Air Communications Service operates radio station, navaids.

(3) Airways and Air Communications Service, whose duties include operation of fixed aeronautical point-to-point and ground-to-air radio stations, electronic aids to navigation and the like. More than 2,000 facilities are involved.

Flying weather laboratory prepares for instrument letdown after day's work.

Arctic airlift of MATS carries out "routine" mission in Greenland.

(4) Air Rescue Service, basically designed to save the life of crews involved in aircraft accidents, but which has worked in large-scale disasters both at home and abroad.

(5) Air Photographic and Charting Service, which distributes more than 7.5 million aeronautical charts monthly covering the entire globe. Its job includes still and motion picture production; the research, production, distribution and storage of aeronautical charts, air target materials and related cartographic services; precise aerial mapping photography and aerial electronic geodetic surveys of any assigned area to meet Defense Department requirements.

B-17 of MATS Air Rescue Service parachutes lifeboat to downed crew.

These jobs are accomplished by approximately 110,000 military and civilian personnel.

by the government, that development costs being what they are, new cargo aircraft ought to be subsidized.

Of course, even if this policy were promptly bought, there would be more than a little discussion on what such aircraft should be—turboprop or jet? Land- or water-based? There won't be any easy answers. But it is in this direction that ultimate solutions of the current battles will be found.

• **Bright spot in picture**—In the meantime, there is another bright spot in the picture. The Senate Armed Services Committee has provided an additional $140 million for the development of airlift in the AF's budget. Some of this will undoubtedly be used to find at least some of the answers to the alleged deficiencies in cargo airlift capability.

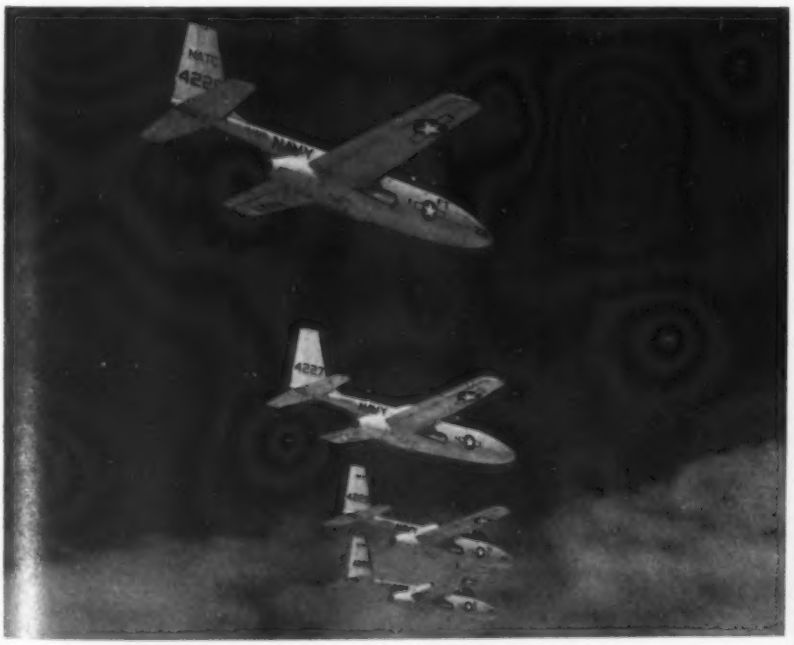
At the same time, high ranking AF officers concede the obligation to help both the civil air transport industry and the Army to solve their problems and are looking ahead to aircraft beyond the big Douglas C-133.

The danger is, however, that it would be four years or more before such aircraft could be developed. There is a big question whether in the meantime Congress will hold still for the kind of arguments which took place on Capitol Hill last year over MATS competition with the airlines and Army's dissatisfaction with the airlift capability.

Recognizing these facts, Gen. Tunner is hoping to find at least a temporary solution to his problems. He, of course, could have been substantially helped by the latest of the successful airlift operations—that is the big airlift to supply both the U.S. in Lebanon and the British at Amann in Jordan.

• **Pilots and crews bitter**—In the meantime, of course, MATS pilots and crews are somewhat bitter at the criticism heaped on their heads. They point out that in many cases, they fly routes that no air carrier would consider either economic or desirable including Greenland, Newfoundland, Labrador, Ascension Islands and Churchill.

They add that actual competition is with Pan American Airlines, TWA and Eastern Airlines, while most of the criticism comes from carriers who are actually holders of MATS contracts, and who are looking for more business.



Navy Gets First Primary Jet Trainers

A flight of four TT-1's, the Navy's first primary jet trainer. Built by Temco Aircraft Corp., Dallas, Tex., the aircraft combines an unusually high dive speed of more than 400 knots with a stall speed of 63 knots. In addition, the aircraft has a number of features of first line combat type aircraft such as a liquid oxygen system, ejection seats and speed brakes, which are designed to make transition from the primary jet trainer to combat type aircraft easier for the cadet. Navy is evaluating the trainer to determine its place in its inventory.

SPECIAL NOTICE...

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TURBINE-POWERED SIKORSKY S-62—With an empty weight 700 pounds less than an S-55's and a turbine engine producing 200 more horsepower, the S-62 outperforms the earlier aircraft while offering the extra benefits of using proven S-55 components. A completely watertight boat hull provides takeoff and landing capability on water, land, and snow. The power plant is a G.E. T-58 gas turbine. The S-62, which will carry 12 passengers, has many advantages for both commercial and military operators.

AROUND THE WORLD WITH SIKORSKY HELICOPTERS

HELICOPTER "SKYHOOK"—The Army has found that disabled light aircraft can be successfully brought back to their home bases by helicopter. Above, an Army H-34 (Sikorsky S-58) from Fort Huachuca, Arizona, brings home an L-19 damaged in a landing accident at Tucson Municipal Airport, about 100 miles away.

ASSAULT AIRLIFT FOR 6000 MEN—Sikorsky helicopters flew 2000 sorties in a recent amphibious exercise on the Atlantic Coast. Flying from naval vessels, they carried ashore a Marine Corps regiment, 100 vehicles, and hundreds of tons of cargo. Hardest workers were HUS (S-58) and twin-engined HR2S (S-56) helicopters, above.

VERSATILE S-58 POURS CONCRETE—A Sikorsky S-58 moves into position before pouring a 2700-pound load of ready-mixed concrete from its hopper. Helping to build a high-voltage transmission line in California, the S-58 airlifted working crews, as well as batches of concrete for the tower footings, and finally carried sectionalized steel towers to the inaccessible sites. The S-58 eliminated the need for a costly construction road, and saved time. S-58s have proved their rugged dependability in a variety of construction jobs, as well as in passenger and cargo transportation. Sikorskys are the only large helicopters fully proved in commercial service.

SIKORSKY AIRCRAFT
STRATFORD, CONNECTICUT
One of the Divisions of United Aircraft Corporation

Summary of U.S. Airline Traffic for May 1958 vs. May 1957

Compiled by American Aviation Publications from Official CAB Data

Airlines	Revenue Passengers			Revenue Passenger Miles (In Thousands)			Total Ton-Miles Rev. Traffic			% Available Ton-Miles Used	
	1958	1957	% Change	1958	1957	% Change	1958	1957	% Change	1958	1957
DOMESTIC											
American	622,000	668,367	— 6.9	414,111	434,388	— 4.7	49,392,674	51,760,341	— 4.6	52.7	58.6
Braniff	176,933	172,932	2.3	74,722	72,787	2.7	8,220,412	7,896,963	4.1	46.9	48.9
Capital	329,305	345,490	— 4.7	131,565	133,052	— 1.1	13,830,720	13,758,834	.5	43.3	46.5
Continental	65,572	69,609	— 5.8	29,939	29,403	1.8	3,211,778	3,115,385	3.1	37.8	42.0
Delta	223,585	226,215	— 1.2	110,321	108,409	1.8	12,296,043	11,803,114	4.2	50.9	57.2
Eastern	618,293	652,279	— 5.2	323,129	351,334	— 8.0	33,630,054	36,898,362	— 8.9	45.2	41.9
National	107,040	110,104	— 2.8	64,656	66,488	— 2.8	7,104,113	7,271,633	— 2.3	44.5	49.9
Northeast	67,439	56,073	20.3	27,453	14,844	84.9	2,819,622	1,520,672	85.4	35.3	40.9
Northwest	124,991	116,467	7.3	86,252	79,769	8.1	9,825,126	9,167,872	7.2	41.8	48.5
Trans World	383,932	384,665	— .2	306,221	291,298	5.1	33,141,612	32,075,078	3.3	53.5	58.0
United	568,180	525,513	8.1	403,669	383,435	5.3	47,339,812	45,060,495	5.1	55.3	55.1
Western[1]	256	109,774	....	60	53,157	....	5,715	5,689,693	..	44.3	54.5
TOTALS	**3,287,326**	**3,437,488**	**—4.4**	**1,972,098**	**2,018,364**	**—2.3**	**220,877,681**	**226,018,442**	**—2.3**	**49.6**	**52.9**
INTERNATIONAL											
American	8,451	10,941	—22.8	7,145	7,379	— 3.2	1,068,575	1,103,549	— 3.2	44.3	58.6
Braniff	3,611	3,279	10.1	6,693	7,331	— 8.7	841,042	898,201	— 6.4	39.5	48.6
Delta	4,346	5,655	—23.1	5,794	6,735	—14.0	704,634	813,214	—13.4	42.1	52.8
Eastern, Overseas	28,287	25,656	10.3	37,864	34,070	11.1	4,096,377	3,651,138	12.2	...	52.1
San Juan	19,781	21,747	— 9.0	29,003	30,994	— 6.4	3,119,652	3,331,675	— 6.4	54.2	52.6
Bermuda	5,563	3,909	42.3	4,349	3,076	41.4	450,443	319,463	41.0	44.6	47.8
Mexico	2,943	....	....	4,512	....	....	526,282	.....	....	42.8	...
National	4,594	5,830	—21.2	3,309	3,903	—15.2	404,944	451,887	—10.4	35.4	37.2
Northwest	12,009	10,510	14.3	25,770	21,515	19.8	4,590,768	4,050,880	13.3	61.6	64.3
Hawaiian	1,382	694	99.1	3,660	1,810	102.2	437,063	236,828	84.5	54.7	38.1
Panagra	10,712	11,662	— 8.1	13,464	13,173	2.2	2,010,853	1,869,823	7.5	55.9	55.6
Pan American, System	209,735	220,084	— 4.7	309,189	337,024	— 8.3	42,374,903	44,338,821	— 4.4	...	62.0
Latin America	78,977	92,069	—14.2	87,300	98,409	—11.3	13,200,161	13,517,914	— 2.4	58.6	59.6
Atlantic	106,250	98,606	7.8	142,387	139,982	1.7	18,240,836	17,804,878	2.4	55.2	63.2
Pacific	20,669	22,781	— 9.3	75,324	91,370	—17.6	10,314,365	11,956,412	—13.7	64.9	64.5
PDX/SEA-HON.	779	1,164	—33.1	2,395	3,289	—27.2	291,006	395,739	—26.5	38.9	33.2
Alaska	3,839	6,628	—42.1	4,178	7,263	—42.5	619,541	1,059,617	—41.5	57.4	49.1
Trans Caribbean	7,296	.....	....	11,714	.....	....	991,593	.....	....	78.1	...
Trans World	29,854	23,275	28.3	80,055	57,928	38.2	9,974,732	7,648,643	30.4	51.5	73.4
United	7,643	6,968	9.7	18,986	17,471	8.7	2,180,276	1,978,961	10.2	60.0	57.6
Western	247	....	....	384	....	....	41,289	.....	....	68.5	...
TOTALS	**326,785**	**323,860**	**.9**	**520,367**	**506,529**	**2.7**	**69,279,986**	**66,805,117**	**3.7**	**56.2**	**61.5**
LOCAL SERVICE											
Allegheny	39,473	40,791	— 3.2	6,904	6,798	1.6	703,963	691,090	1.9	45.6	45.5
Bonanza	15,955	11,699	36.4	3,715	2,555	45.4	371,098	258,013	43.8	44.5	42.1
Central	11,192	10,718	4.4	2,107	2,086	1.0	216,458	213,328	1.5	30.6	31.3
Frontier	21,060	17,396	21.1	6,088	4,691	29.8	679,961	548,336	24.0	61.8	56.6
Lake Central	14,503	15,000	— 3.3	2,307	2,411	— 4.3	236,340	245,196	— 3.6	38.6	41.8
Mohawk	39,036	38,121	2.4	7,309	7,163	2.0	731,507	724,837	.9	48.4	53.6
North Central	60,050	54,458	10.3	10,226	8,883	15.1	1,034,989	893,681	15.8	45.1	49.2
Ozark	35,994	36,090	— .3	5,988	5,999	— .2	612,824	617,170	— .7	45.4	43.3
Pacific	32,164	27,900	15.3	7,245	5,926	22.3	714,937	587,354	21.7	52.4	49.7
Piedmont	34,239	37,380	— 8.4	7,062	7,713	— 8.4	716,636	782,815	— 8.5	48.8	53.5
Southern	17,838	19,142	— 6.8	3,250	3,356	— 3.2	334,720	339,974	— 1.5	36.0	37.1
Trans-Texas	19,011	21,389	—11.1	4,371	4,799	— 8.9	467,601	506,214	— 7.6	37.1	37.0
West Coast	22,180	22,720	— 2.4	3,814	3,965	— 3.8	381,131	391,104	— 2.5	43.5	46.3
TOTALS	**362,695**	**352,804**	**2.8**	**70,386**	**66,345**	**6.1**	**7,202,165**	**6,799,112**	**5.9**	**45.4**	**46.1**
ALASKAN											
Alaska	5,550	5,442	2.0	2,963	1,980	49.6	618,506	665,464	— 7.1	42.3	43.7
Alaska Coastal	5,185	4,725	9.7	463	420	10.2	56,178	51,215	9.7	64.6	62.3
Cordova	1,414	2,004	—29.4	137	599	—77.1	27,295	291,342	—90.6	41.9	48.2
Ellis	4,660	5,319	—12.4	327	347	— 5.8	38,249	40,212	— 4.9	73.1	67.8
No. Consolidated	1,724	1,635	5.4	553	582	— 5.0	138,442	156,331	—11.4	55.6	59.1
Pacific Northern	9,977	9,558	4.4	9,230	9,240	— .1	1,370,488	1,390,136	— 1.4	62.8	63.1
Reeve	1,116	872	28.0	701	643	9.0	179,859	112,438	60.0	54.3	39.9
Wien	1,991	1,928	3.3	743	660	12.6	325,624	558,049	—41.6	58.8	85.5
TOTALS	**31,617**	**31,483**	**.4**	**15,117**	**14,471**	**4.5**	**2,754,641**	**3,265,187**	**—15.6**	**55.3**	**52.6**
HELICOPTER SERVICE											
Chicago	9,746	3,709	162.8	180	55	227.3	18,968	7,989	137.4	32.4	34.7
Los Angeles	3,617	3,370	7.3	110	102	7.8	16,987	15,606	8.8	59.3	58.3
New York	6,336	6,981	— 9.2	119	126	— 5.6	14,034	16,238	—13.6	41.6	41.3
TOTALS	**19,699**	**14,060**	**40.1**	**409**	**283**	**44.5**	**49,989**	**39,833**	**25.5**	**41.3**	**44.7**
TERRITORIAL											
Caribair	18,191	17,355	4.8	1,253	1,206	3.9	135,433	130,567	3.7	58.5	56.4
Hawaiian	28,712	29,377	— 2.3	4,358	4,444	— 1.9	488,636	517,562	— 5.6	55.9	57.3
Trans Pacific	13,737	14,000	— 1.9	1,915	2,041	— 6.2	162,893	174,946	— 6.9	54.8	56.2
TOTALS	**60,640**	**60,732**	**— .2**	**7,526**	**7,691**	**—2.1**	**786,962**	**823,075**	**—4.4**	**56.1**	**57.0**

[1] Western Air Lines pilots on strike. Data reported reflects charter operations.

CESSNA L-27A

Now on duty to save money for the Air Force

The Cessna L-27A is now on operational duty with the U. S. Air Force. Its speed—the highest speed of any U. S. A. F. light twin transport—and its range and versatility are proving highly valuable in raising administrative mobility.

Cessna designed and built the L-27A for hard work. Power loading, acceleration, and climb characteristics are excellent. Single engine performance is particularly outstanding—for this modern Cessna twin packs more power per pound than any other light twin transport. Operating and maintenance costs are low. Result: the Cessna L-27A makes substantial savings for the U. S. Air Force. Cessna Aircraft Co., Wichita, Kansas.

Cessna

Circle No. 11 on Reader Service Card.

Robert L. Rhodes

Rhodes Heads New NWA Maintenance Division

Robert L. Rhodes has been named head of Northwest Orient Airlines' newly created maintenance division.

Reporting to him as managers of line maintenance, overhaul and engineering, respectively, are P. H. Sanders, C. W. Baston and E. S. Hamm, thus consolidating all departments into one division.

Rhodes joined Northwest in 1946 as an aircraft electrical engineer, rising successively to senior aircraft electrical engineer, lead aircraft engineer and assistant to the vice president of operations and director of engineering.

He received his B.S. degree in general engineering at Iowa State College and in 1954 obtained a master's degree in industrial management at Massachusetts Institute of Technology.

Mayer Back As President Of Air Express International

Chester M. Mayer, founder of Air Express International Corp., resumes the position of president after an absence of 11 years because of ill health.

Mayer formed AEI in 1935 at the age of 24, offering shippers an air/sea express service employing ocean liners for surface transportation to Europe and points beyond, with transfers on the continent to operating airlines.

During World War II he became general agent for several foreign-based airlines operating from Miami.

After the war, with the beginning of regular commercial transatlantic air service, Mayer expanded the company's

Chester M. Mayer

international air freight service on a global scale. He remained board chairman throughout his period of temporary retirement.

Robert R. Miller

Northrop Elevates Four Vice Presidents

Robert R. Miller and Thomas V. Jones have been named senior vice presidents of Northrop Aircraft, Inc. Richard R. Nolan and Irving Roth are named corporate vice presidents.

Miller was formerly corporate vice president and general manager of the Northrop division, which position is being filled by Nolan, previously vice president in charge of manufacturing.

Jones previously held the position of corporate vice president for development and planning. Roth will continue his duties as assistant to the president in addition to his new responsibilities.

Miller and Jones will have broad responsibilities in the overall management of the corporation.

Gen. Chennault Dead Of Cancer at 67

Death from lung cancer, long expected, finally came to Lieut. Gen. Claire Lee Chennault, one of the most colorful figures in aviation history, in a New Orleans hospital on Sunday afternoon, July 27.

Chennault, the man who led the Flying Tigers and the 14th Air Force against Japan in World War II, told reporters on Formosa two days before last Christmas that he was dying of cancer. Part of his left lung had been removed in an operation in 1956, but another cancerous growth was discovered a year later.

At his bedside when he died was his second wife, Anna Chan, a young Chinese reporter whom he had married in 1947. They had two daughters. Earlier this month, his old friend, Mme. Chiang Kai-shek, on a visit to the U.S., made a special trip to New Orleans to visit him.

Gen. Chennault had six children with his first wife, Nell Thompson. They were divorced in 1946 after being married 35 years.

In recent years, Gen. Chennault operated China Air Transport, largest independent airline in the Far East, and was a strong political supporter of Generalissimo Chiang Kai-shek's Nationalist Chinese government on Formosa.

Greenhow Johnston, Pioneer In Aviation, Dies at 70

One of the early aviation pioneers, Greenhow Johnston, died July 27 in Richmond, Va. at the age of 70. An engineer and mechanic, Johnston patented an airplane in 1911 and organized a company to build it.

Johnston's plane was a birdlike contraption powered by a motorcycle engine and it had to be towed by an automobile to get off the ground. Later his Virginia Aero Manufacturing Co. built a hydroplane that flew to Baltimore and back to Richmond. But when he exhibited the hydroplane to potential customers, it crashed.

In 1917, before the U.S. entered World War I, Glenn Curtiss asked for his release from the Army on the grounds that he was one of the few men who knew the changes that had been made in airplane construction.

—BOOKS—

Gas Dynamics

Fundamentals of Gas Dynamics, Volume III of a series on High-Speed Aerodynamics and Jet Propulsion. Edited by Howard W. Emmons. Princeton University Press, Princeton, N.J. 749 pp. Price, $20.

Outstanding workers in the field of gas dynamics have contributed chapters to this scholarly study covering fundamental areas of high-speed aerodynamics and jet propulsion. They have written on the following topics: equations of gas dynamics, including those most useful to aerodynamicists; one-dimensional treatment of steady and nonsteady dynamics; hydrodynamic discontinuity phenomena; shock wave interactions, and condensation phenomena in high-speed flows.

The final section is an analysis of the flow of rarefied gases, of particular importance in the design of aircraft and missiles for flight at extremely high altitudes.

Theodore von Karman is the chairman of the board of editors, which includes Hugh L. Dryden and Hugh S. Taylor.

Flying Saucers, 1956-'57

The Flying Saucer Review's World Roundup of UFO Sightings and Events. The Citadel Press, New York. 380 pp. Price, $4.95.

Described as "the only complete collection of all the important sightings in 1956 and 1957," this is a compendium of news of flying saucers and other unidentified flying objects throughout the world. As to its authoritativeness, one may perhaps judge from the inclusion of an account of a "flight" in a flying saucer by Mrs. Elizabeth Klarer of South Africa, who says the pilot was the most handsome man she had ever seen. Unfortunately, he returned Mrs. Klarer to earth without leaving his telephone number.

Booklets and Pamphlets

• **CAB regulations**—A new service covering economic and procedural regulations of the CAB will be issued on or about Sept. 1 by the Rules Service Co., 1001 15th St., N.W., Washington 5, D.C. The service will cover, in addition, Part 221 and Part 241 of the Civil Air Regulations. Prices range from $1.2[illegible] for a copy of Part 221 to $18 for a copy of both the economic and procedural regulations, if orders are placed before Sept. 1.

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—WEST COAST TALK—

By Fred S. Hunter

North American Aviation will not want for help in producing its two upcoming high-performance aircraft, the B-70 high-altitude bomber and the F-108 long-range interceptor. No less than 32 companies had representatives in attendance at the recent bidders' conference on structural assemblies for the two planes. NAA is conducting this series of bidders' conferences so that prospective subcontractors and suppliers may be familiarized in advance on the requirements and procedures to be followed in presenting bids for various divisions of the work.

NAA, it might be added, is attracting a very high-type personnel to these conferences. For the one on structural assemblies, for example, three presidents showed up: Donald W. Douglas, Jr. of Douglas; J. A. Lawler of Aeronca and Robert McCulloch of Temco. Vice presidents included: J. M. Mihalic of Avco; James N. Lew of Beech; Julius J. Domonkos of Bell; George C. Martin of Boeing-Seattle; J. G. Richard Heckscher of Budd; S. D. Hackley of Kaiser Metal Products; A. C. Kotchian of Lockheed-Marietta; George F. Douglas and R. R. Nolan of Northrop; B. F. Raynes and A. F. Kitchin of Rohr, W. G. Dollmeyer of Solar, and William Davey of Vertol.

• **More relaxation**—What's this we hear about the airlines quietly seeking approval to turn off the "No Smoking" signs in jet transports? Kerosene doesn't create the same hazard as gasoline. But the big idea is to make it more comfortable for passengers to remain in their seats while on the ground during stops; also makes them more amenable to boarding flights ahead of departure time, thus avoiding loading congestion.

• **Manned aircraft**—Both the Air Force and the Navy are reported showing interest in the use of ramjet power for low-level attack aircraft at very high speeds over short ranges . . . Navy designation for the ASW version of the Lockheed Electra will be P3V and it is already being used informally, although not officially . . . Convair's change in camber of the F-106 wing netted 2,000 ft. more altitude for the airplane . . . Ryan Aeronautical, which turned out the 100th AFT fuselage for the Boeing KC-135 Stratotanker recently, has production orders for these huge 40-foot units scheduled through 1959 . . . And by 1961 the Air Force will have more than 600 eight-jet Boeing B-52s in operation.

• **Jet engines**—Now that American Airlines has broken the ice, other proposals to lease power for turbine transports are in the works. There are numerous advantages to leasing engines instead of laying out the cash for their outright purchase. By leasing engines from Allison, General Electric and P&W, AA discloses its capital saving approximates $80 million, an amount pretty close to the outlay for one of the new aircraft orders. It is even conceivable one or the other of the two new orders for Boeing 707-023S and Convair 600S might not have been placed had AA not been able to work out the leasing arrangements. Many people feel the airlines long have overlooked a bet in not setting up unit exchange arrangements on engines. Some even hold that all flight equipment should be leased.

• **Faster electra upcoming**—CAA certification of Lockheed's turboprop is not far off. August 22, moved up from September, is the target date, and it looks as though Rudy Thoren's crew will make the advanced schedule. Word from out Burbank way also is that the airplane may exceed its guarantees: empty weight will be lighter; the aircraft will be faster, and takeoff and landing field-lengths will be shorter. There's even talk that the gross weight may be higher.

• **Night club aloft**—Tommy Grace, who used to be president of Slick Airways, was back in town the other day from Miami, where he is now executive vice president of American Airmotive Corp., delivering a DC-4, the likes of which you never saw before, to Henry Price for the latter's Hacienda-Las Vegas operation. The plane has forward and aft lounges; a piano forward and 48 loudspeakers in the cabin. When the piano player wearies of his chore, there's a tape player to cut in to keep the show going for the duration of the flight.

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AIRTRENDS

The plight of the airlines in trying to finance their multi-billion dollar transition from piston to jet aircraft has received sympathetic consideration by the White House.

Presidential Assistant Elwood Quesada on Tuesday (Aug. 5) transmitted to President Eisenhower a report on the economic health of the airlines prepared by Dr. Paul W. Cherington, professor of business administration, Graduate School of Business Administration, Harvard University.

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The jet program calls for a gross investment by the airlines of $4 billion and a net investment of $2.6 billion by 1962 in aircraft and facilities, the report states, but due to low earnings some of the carriers have been unable to complete their financing. Some $763 millions remain to be arranged.

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Inability to succeed in financing will pose a serious threat not only to the carriers but to the aircraft industry, some 5,000 vendors, and the entire national economy. It warned of possible cutbacks in orders and a return to subsidy to keep some carriers in operation.

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The report suggests four possible steps to improve earnings: (1), elimination or reduction of certain fare discounts now in effect, (2) increased promotion and reduced fares of air travel during off-peak periods, (3) increased fares for certain classes of air service and (4) continued aggressive action by management to improve operating efficiency.

And the impact of jets on current airline route policies is not overlooked. Apparently no agency of government currently is undertaking a thorough study of the relationship of jets to present and future route structure, the report states, proposing that such a study would appear highly desirable at the present juncture.

No recommendation is made for any broad program of financial assistance by the government—at this time. But the report does provide suggestions that could be followed up.

Comment by observers was that the report constituted the first recognition by the White House in airline history of the importance of their economic health. And they believed it would aid greatly toward stimulating more confidence in the industry.

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There were two significant actions mentioned in the report. One referred to the President's request to the Secretary of Defense that the latter analyze and review the military role of MATS in peace and war, the implication being that more MATS business might be turned over to the commercial carriers.

The other was the initiation by Mr. Quesada, as chairman of the Air Coordinating Committee, of a review of government policies affecting the disposition by airlines of piston aircraft. More specifically, the Cherington report suggests a review by the Air Coordinating Committee or Operations Policy Board of policies now precluding loans and assistance by Export-Import Bank and the Development Loan Fund for export of second-hand aircraft.

DC-3s are moving on the market. One local line may shortly close a deal for nine. Ozark Air Lines, which received new route grants in the Seven States Case, bought four from Northwest Airlines. Southern Airways picked up one from Continental for $52,500.

Fare war on U.S.-South American routes may break out. U.S. lines flying these routes and charging fares agreed to in the International Air Transport Association are feeling competition of non-IATA low-rate carriers. One IATA member, Linea Aerea Nacional (Chile) will break the agreed fares this month to meet competition. Some U.S. Airline officials feel that a return to substantial subsidies may be necessary if traffic drain continues or if rate war develops. They believe U.S. government should arrange high-level conferences with South American nations and try to get assurances that all lines will charge IATA fares.

Many local service officials give top priority to overhaul of CAB's subsidy and mail

pay standards. They're encouraged by CAB Chairman James Durfee's announcement that the Board's staff is to complete by September a plan for revision of these standards. At the Denver meeting of Association of Local and Territorial Airlines, agreement was reached that ALTA and Air Transport Association will jointly prepare recommendations to CAB on revisions. This probably means that the other local service group, Conference of Local Airlines, will remain inactive.

Here's what ALTA has proposed so far: temporary mail pay should be set to anticipate probable increased costs rather than merely reflect costs of a past period; temporary rates be set so as to include interest; standards for mileage disallowances be more clearly established; mail rates be based on overall efficiency rather than item-by-item examination (see page 54).

Commercial airlift is preferred to military equipment in cases of emergency evacuation of U.S. nationals from a troubled area, the State Department says. At the start of the recent crisis in the Mideast, four Pan American planes—one DC-7C and three DC-6Bs—were chartered to evacuate Americans from Iraq.

The first plane arrived exactly 24 hours after PAA officials accepted the assignment; the second an hour later and the other two followed close behind. State will pay for the charter out of a government emergency fund; PAA, wherever possible, is collecting its regular fare. Because of the unusual conditions, passengers are allowed to pay with personal checks or promissory notes. State officials say they received "wonderful cooperation" from PanAm, and were very pleased with the short response time.

Airline cancellation of provisions that permit stopovers at West Coast points without additional charge will be aired at a CAB hearing. American, TWA and United already have canceled stopover provisions at some points and propose to cancel at others. Bonanza, Continental, Northwest, Pacific and Western are proposing to cancel at some points too. Cancellation would permit the lines to require higher payments for the stops based on combination of fares.

Third man in the cockpit of the first Boeing 707 to be used by MATS to transport the President and other high government officials will be a flight engineer if present plans hold up. Elsewhere, within the civil transport industry, the problem is still smoldering. Reports of two Presidential emergency boards which recommended solutions have been turned over to CAB's Bureau of Safety for evaluation. Not many industry observers expect this to produce any significant change in the applicable civil air regulations though.

CAB has indicated eventual disapproval of IATA fare proposals for service between the U.S. and Canada and certain points in South America and the Caribbean. It said the fares are in excess of the amounts necessary to reflect recently increased U.S.-San Juan (P.R.) fares and the increases should not be superimposed on the previous ones. The board, however, approved an increase in U.S./Canada-Bermuda first-class and tourist fares and an IATA agreement to discontinue common-rating of N.Y.-Bermuda and Washington-Bermuda first-class and tourist fares.

Local lines, still on the fence about new equipment purchases, are convinced they can raise the necessary money through loans and possibly stock issues. But they're realistic in admitting that they'll pay a substantial price for the money. Reason: no earnings record.

USAF has spelled out a policy for use of commercial airlines for cargo airlift. Inconvenience, or similar reasons, will not be sufficient justification to use military instead of commercial. Airlines are to be used unless (1) security requirements would be violated, (2) delay in moving cargo would jeopardize national security or critically affect assigned missions, (3) cargo is needed in a maneuver or training exercise which requires use of military transport, (4) airlift mission is of an emergency nature, including disaster relief, (5) materiel is too bulky or heavy for airlines, (6) cargo space is available as a "by-product" on military-owned or operated planes flown primarily to meet assigned mission requirements.

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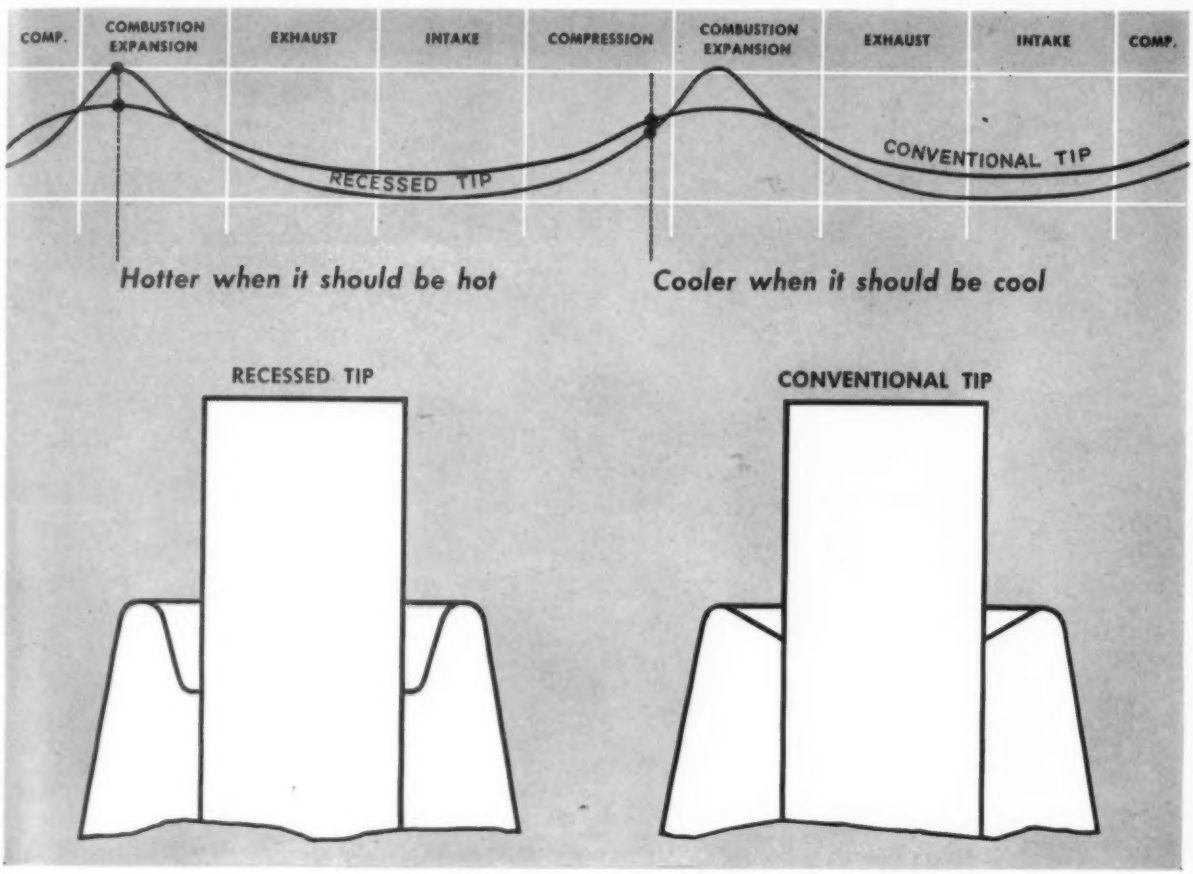

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Why Braniff Has No Money Worries

- **Discontent bred success, says Beard**
- **'Awareness for economy, awareness for profit'**
- **Constant cost control, no crash programs**

By Eric Bramley
Chief News Editor

DALLAS—"The reason we've grown is because we're in a perennial state of discontent," says Charles E. Beard, president of Braniff Airways.

However, from the looks of its present operations, its future outlook, and the workmanlike job done on its turboprop and jet financing, Braniff would seem to have comparatively little about which to be discontented.

Traffic is increasing, operating revenues are expected to gain more than 14% over 1957, and the company, which serves some 50 domestic and 10 Latin American points, will probably show at least as good a profit as last year—due primarily to tight cost control. "We have created throughout the company an awareness for economy and an awareness for a profit," Beard notes.

• **No surplus piston aircraft**—Of particular interest is the status of Braniff's turbine airplane program. There's much talk these days about the large number of piston-engined planes that the airlines must sell. Braniff says it has no such problem. There's talk about jet financing that in some cases must still be arranged. Likewise, no problem at Braniff.

The financing for $56 million worth of jets and turboprops (five Boeing 707-227s, nine Lockheed Electras) was arranged some two years ago. It was accomplished through loans from insurance companies, a million-share stock issue, and will include cash throw-off and depreciation. It includes *no funds* anticipated from sale of piston-engined aircraft.

When Braniff officials started work on financing, they studied the company's past rate of growth and noted that it was considerably under the industry average, primarily because no major new routes had been awarded. Also, the airline had been somewhat under-equipped. It was decided that no major equipment sales would be necessary when the turboprops and turbojets arrived.

Chuck Beard, who took over the presidency in 1954 following the death of Tom Braniff, believes that the company has not yet developed the full potential in the area it serves, and that the 707s and Electras will release other equipment to develop this traffic. This is one reason why there may be no surplus aircraft.

The new planes will replace DC-7Cs, which in turn will replace certain DC-6s. The latter will take over some Convair schedules, and the Convairs will replace certain DC-3s.

If there should be a surplus, the planes can be used for cargo or charter. Or, because they're written down on the books, they can be put on the ramp. And if the company decides eventually to sell equipment, it keeps expected prices on the conservative side: $300,000 for a DC-6, $200,000 for a Convair, $30,000 for a DC-3.

The 707-227s (essentially a 707-120 fuselage but with the bigger J75 engines) will be delivered between October, 1959 and March, 1960, and will first be placed on the Texas-New York and Texas-Chicago routes before being introduced in Latin America. They will carry 44 tourist and 73 first-class seats.

The Electras, one-class airplanes with 75 seats and a lounge for six, will fly Texas-Chicago, Texas-New York, Texas-Colorado and Texas-Twin Cities. These planes, for delivery between May, 1959 and January, 1960, will not be used in Latin America.

Beard is of the opinion that the public may be willing to pay a somewhat higher fare for 707s and Electras. But he emphasizes that while company officials have "discussed" the fare situation, they have not yet "studied" it.

In the first six months of 1958, Braniff's net operating income on domestic routes was $836,000, up 40.3% over the same period last year. Equipment sales raised the net to $1,023,000, up 78%. Revenues gained 12.24% against a 10.89% increase in expenses. This is attributed to the cost control program. Beard points out that in the first five months of the year, actual operating costs were one-half of one percent below the estimate while revenue miles were one-tenth of one percent ahead. (A Braniff treasury department official remarks: "We have constant cost control—but no crash programs.")

On its Latin American routes, the company's net operating loss for the six months was $178,000. This was partially due to the fact that no subsidy was received this year. In the first half of 1957, Braniff received $525,806 in subsidy. It was taken off subsidy on July 10, 1957, and is now on an open rate. Final rates will probably not be determined for some time.

• **Competition serious in Latin America**—Braniff is seriously concerned about the effects of competition in Latin America by carriers who are not members of the International Air Transport Association and who charge fares lower than those agreed to by IATA lines. These carriers, who are adding more modern pressurized equipment, are draining away business and the fear is that if the situation continues, Braniff, as well as other U.S. airlines, may again need substantial subsidy. There's also the possibility that a rate war could develop.

In 1957, Braniff's operating revenue (passengers, mail, cargo and miscellaneous) was $62,887,471 (net profit was $1,727,000). This year it is shooting for $72 million—the goal was raised $2 million after CAB granted the fare increase, which was about 7% for Braniff. The first six months produced $33,214,000, and inasmuch as the last half is traditionally better, the chances are good that the $72 million will be reached.

Braniff's present yield per passenger-mile is 6.1¢ domestic (7.6¢ international). But this yield is coming down as more coach service is added. In the first six months, the yield was up only 5.7% although the fare increase was 7%. The company's position is that the 7% was not enough; the boost should have been 12.5%.

On the operations side, Braniff's training committee for the 707s and Electras has been functioning for some time. Pilots, maintenance employes, station personnel and dispatchers have started home study courses on gas turbine engines, and employes have been to factory schools. Either a turbine engine simulator will be purchased or time will be bought on one from another airline. No decision has yet been made on jet fuel; operations officials say that price will be a principal factor in this choice.

Braniff, incidentally, hopes soon to

have its first night instrument authority for operations across the Andes from Lima to Rio de Janeiro. This has not been possible before because of a lack of navigational aids.

In early 1956 Braniff received one of its major route extensions, from Texas to New York, in competition with American Airlines. Less than two months after opening service, the route was in the black. According to the last study made, several months ago, Braniff was hauling almost 29% of the Ft. Worth/Dallas-New York business with some 17-18% of the service. Company officials believe that the same percentages probably apply today.

• **Service pays off**—Rex Brack, vice president-traffic and sales, believes this route has been successful because of the service offered. The "Silver Service" has featured fine foods, wines, sterling silver giveaways and good in-flight service, he points out, adding: "Silver Service sounded de luxe and it's been even better than it sounded." The company has not received a single complaint about in-flight service on these schedules.

One of the principal traffic-sales problems, Brack believes, is how to speed up reservations and check-in procedures, especially with the coming of the jets.

He has a somewhat revolutionary idea for on-line ticketing and check-in, but he's still studying it to make sure it's a real time-saver.

For the future, Braniff wants some major route extensions and improvements. It wants restrictions lifted so it can operate from Denver to New Orleans via Tulsa or Oklahoma City or both. And it's seeking Dallas/Ft. Worth to the West Coast and also from those cities to Miami.

Asked whether he sees any mergers in Braniff's future, Beard says: "We've been too busy to even think of mergers. Merger per se is not an automatic antidote to any ill."

For Locals, Inefficiency Can Pay Off

By Frederic P. Kimball

A most unhappy situation for the local service and helicopter airlines and for the Civil Aeronautics Board has developed in the last year, as the board's pace in setting final mail rates for these carriers—never very speedy—has slowed down to a dead stop.

Temporary mail rates, the board's substitute for final rates, are a poor expediency.

• They encourage carrier inefficiency, either deliberate or unconscious.

• They blindfold the board from judging promptly how much air service and what type should be subsidized.

• They prevent the carriers from earning operating profits day by day.

Both types of rates include an element of subsidy for the local and helicopter airlines. Under final or "closed" rates, any profits earned may be kept and an allowance for profit is built into the rate. Under temporary or "open" rates, mail and subsidy payments are set at break-even levels, at best, and even then are subject to adjustment, retroactively, when a final rate is set.

As of June 15, only two of the 13 local service airlines, Piedmont and Trans-Texas, and only one of the helicopter lines, Los Angeles Airways, had final rates.

What is needed is a crash program for final rates for these airlines, similar to a program the board put into effect for the intra-Alaskan airlines in 1952-53. In addition, if temporary rates are to become rare instead of prevalent, final rates must yield a decent profit and must be flexible enough to stay profitable under varying conditions.

Mr. Kimball is an aviation consultant specializing in air transport economics, with offices at Westport, Conn. He was formerly an analyst in American Airlines' Department of Economic Planning, an associate at Charles A. Rheinstrom, Inc. and a partner in the firm of Kimball & Gill.

• **Backlog of cases at record high**—In the last 15 months no new final mail rate has been set for any local or helicopter airline, and the backlog of temporary rates awaiting finalization has grown to a record high.

Both Allegheny and Mohawk have been waiting three years for their new final rates. Central, North Central, Pacific, Southern and West Coast have been on temporary rates since 1956. Bonanza, Frontier, Lake Central and Ozark, reverting to temporary rates in 1957, also remain in that status today.

For the helicopter airlines the most recent final rate decision was Los Angeles', Feb. 18, 1957. The other two operators, Chicago Helicopter Airways and New York Airways, have had petitions for new final rates pending since early 1956.

Temporary rates kill the profit motive as a drive toward increased efficiency. An airline growing more efficient under temporary rates will later be obliged to turn all its resultant savings back to the government. Profit allowed under the final rate, if any, will be only a return on investment which would have been allowed anyway.

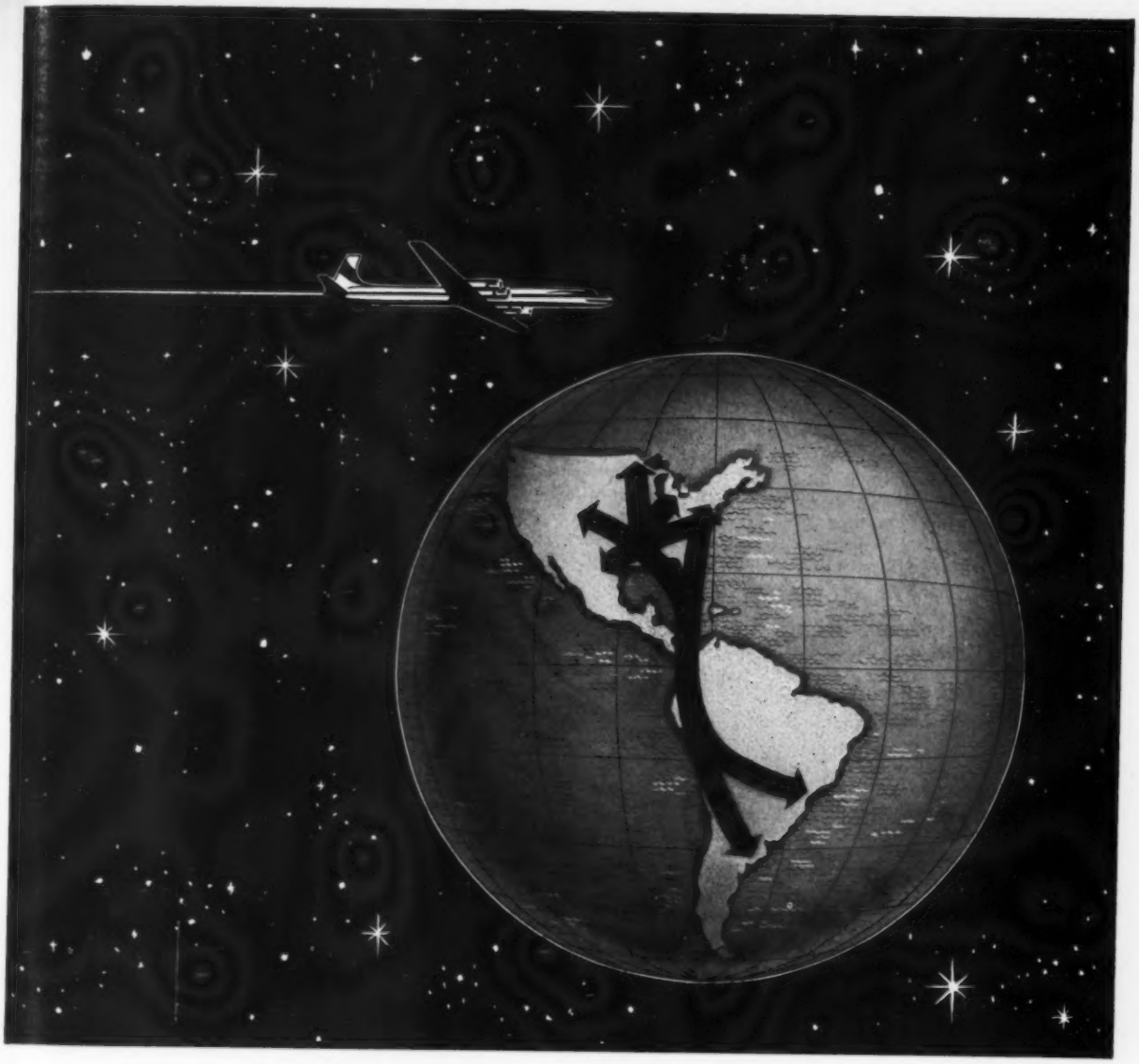
In fact, inefficiency becomes positively advantageous—if it is not detectable. Of course obvious inefficiency will be disallowed when a final rate is set. Subtle inefficiency, however, such as mild over-expansion of flight schedules, or not fully-warranted increases in sales expense, for example, are practically impossible to spot.

Such inefficiency gives a carrier an excellent springboard for future profits later under a final mail rate. When the final rate is eventually set for the future it will embrace undetected inefficiencies which the carrier will later find quite easy to correct. This improved efficiency in the future will then add directly to profits, the rate being "closed" and profits being immune to recapture. The rate will stay closed, too, unless profits become so obviously excessive the board itself reopens the rate to reduce future subsidy.

Collective inefficiency, moreover, becomes feasible when temporary rates prevail. At present, with only two local airlines and one helicopter airline striving for profits through efficiency under closed rates, the board has practically no yardsticks above suspicion to measure the efficiency of the many airlines operating under temporary rates. The many are thereby almost free to set their own standards of efficiency.

• **Inefficiency not deliberate**—While deliberate inefficiency may be unthinkable, either as an individual or collective act, unconscious inefficiency is not. As a practical matter it must be extremely difficult for airline management to control costs on a firmly budgeted basis in the "cost-plus" atmosphere of temporary rates. On the other hand, under a final rate, management has a real incentive to cut costs and boost commercial revenues, spurred on by profit possibilities.

The board, too, has much to lose under the temporary rate system. It finds itself paying for expanded operations and the use of new flight equipment without a proper examination of underlying need. Temporary rates are set to meet break-even needs as an ex-



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pediency, almost willy-nilly. Later, after studying the merits of an operation, the board could find that a major disallowance was required. Yet to make such disallowance would hardly be practical. To disallow a whole fleet of one aircraft type, for example, or to disallow, say, one-third of the mileage scheduled during a past period, would almost surely bankrupt a carrier.

Thus the temporary rate system puts the board on the spot, and the longer the rates drag the hotter the spot. At the same time, the risks for the carriers grow too, because potential disallowances—which can be substantial—keep increasing in dollar amount every day.

Meanwhile, most airlines incur operating losses, temporary rates being designed only to cover break-even needs. When costs increase faster than commercial revenues, as they nowadays often do, losses follow, mail pay remaining constant with no profit cushion.

• **What happened in 1957**—In 1957 only two local airlines reported operating income in six-figure amounts: Piedmont, $138,562, and Trans-Texas, $172,092. Both obtained final rates early in that year and stayed with those rates through the year. Ozark, reporting a modest operating profit of $50,388 for 1957, also had obtained a final rate early in the year, but reopened its rate before year-end. All the other local airlines, failing to obtain any new final rate throughout the year, lost money. Their combined loss was $1,121,314.

Of the helicopter airlines, Los Angeles Airways, with a final rate, had a 1957 operating profit of $150,972, while the other two, Chicago and New York, under temporary rates, lost $47,555 and $235,359, respectively.

Of course if the airlines with final rates were losing money presumably they would file for new rates, reverting to temporary rate status. But once an airline is under a temporary rate, operating losses are almost inevitable.

Moreover, operating losses suffered under temporary rates are not necessarily to be recovered later through retroactive final rates. The board, with the benefit of hindsight, often refuses to recognize some past expenses for rate-making purposes. These disallowances, together with accounting adjustments, may more than offset the normal profit.

This is particularly true of rates covering relatively remote past periods. Piedmont, for example, had received $2,383,791 in mail pay for the period March 18, 1955 through June 30, 1956, under a series of temporary rate orders the last of which was issued Aug. 27, 1956. When the final Piedmont rate was established seven months later, on March 15, 1957, final mail pay for this period was set at $2,290,087, or $93,704 less than the amount received under temporary rates.

As a corollary, financial statements have little meaning. Earnings statements in annual reports, for example, must bear a footnote saying, in effect, "Don't rely on the net financial results we show here. Our mail revenues were received under temporary rates. Under a final rate, we may get additional mail pay retroactively, or we may have to make a refund to the board. We don't know which or how much."

• **Economic quicksand?**—The prevalence of temporary rates, in short, has trapped the board and the airlines both in economic quicksand, bogged down much deeper than may be realized.

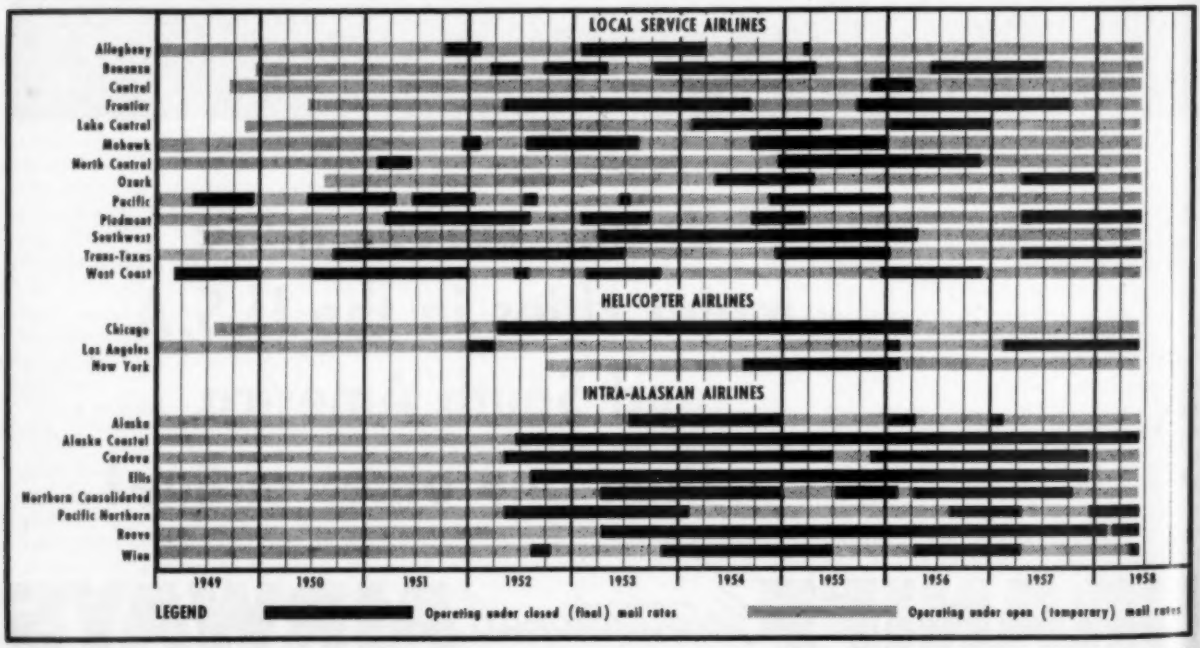
How did it happen?

The board first used the device of temporary mail rates for a local airline (Essair) in 1946, as a matter of expediency, recognizing at that time that this was a "cost-plus" system, tending to "destroy a carrier's incentive to maintain costs at a reasonable level and to develop its nonmail business."

The board continued to recognize the desirability of final rates for local airlines for several years thereafter. Final rates were called a matter of "particular urgency" in the board's annual report for 1948, "imperative" in the 1949 report and "essential" in 1950. By Dec. 31, 1951, six of the present 13 local airlines were on final rates. Subsequently, however, final rates were reopened by the local carriers (or occasionally by the board) about as fast as temporary rates were closed; six closed rates out of a possible 13 became typical until the recent bogdown to two.

The basic fault, however, lies in the inadequacy of past final rates.

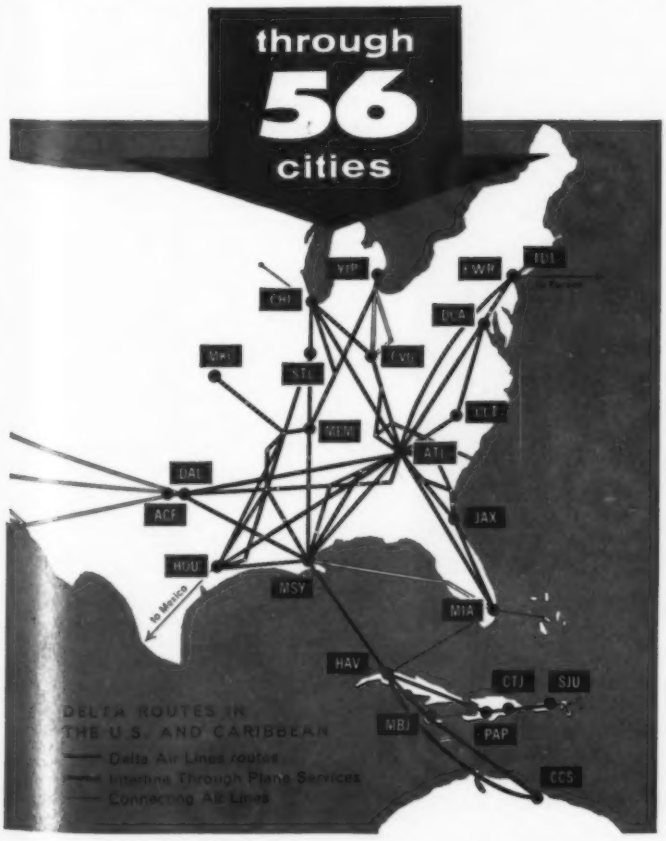
(*Continued on page* 58)



MAIL RATE STATUS of local service, helicopter and intra-Alaskan airlines from January 1, 1949 through June 15, 1958. Only change since June 15 is the setting of final rates for N.Y. Airways on July 9, 1958.

54

DELTA makes connections with 54
Trunk, Local Service and Overseas airlines



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Given final rates which provide a decent profit under changing conditions, the carriers would rarely need to re-open their rates.

If, in addition, the board would allow carriers to open their rates on a partial basis (to cover operations over a new route, for example) the settlement could be simpler and faster.

•Board waking up?—Some members of the board recently have been recognizing anew the evils of the system.

Member Harmar D. Denny, dissenting in a Mohawk temporary rate decision last January, balked at supporting Mohawk's mixed fleet operation through temporary mail pay without the board's first having appraised the economy of that operation. With such a precedent, he asked, how could the board refuse to pay break-even temporary mail rates for the "re-equipment ventures" of all local airlines, regardless of the aircraft operated?

Member Louis J. Hector in this same decision deplored the board's postponement, through temporary rates, of decisions "which are squarely the board's responsibility (regarding) the extent, character and quality of air service to be subsidized with Federal funds."

Chairman James R. Durfee, in a speech before the Association of Local and Territorial Airlines, at Las Vegas, April 11, said "Our present system does not provide the necessary incentive to remain on final rates."

There is ample precedent for a "crash program" to put the local and helicopter airlines all on final rates, established with the subsidized Alaskan carriers in 1952 and 1953. Board initiative and perseverance did the trick. As stated in the C.A.B. annual report for 1952:

> "Believing firmly that the (critical) problems of such carriers could not be alleviated substantially until they were placed on final rates, the board expedited final mail-rate action for all such carriers."

In the first Alaskan final mail rate case (Cordova, May, 1952) the board spoke of "the vitally important benefits of final future rates, which alone can stimulate to the maximum the efficient and economic development of (the Alaskan) air carriers." That decision and the accompanying mail rate order were the "first fruits" of a program whereby it was hoped to put the Alaskan airline "on the road to economic stability and ultimate self-sufficiency."

By Dec. 31, 1952 all eight of the certificated intra-Alaskan airlines had been placed on final rates.

• Alaskan carriers doing well—The Alaskan carriers today are in some respects in a relatively stronger economic position than the other local and helicopter airlines. Admittedly the finality of Alaskan mail rates is only one factor but an important one.

Subsidy requirements for intra-Alaska service have decreased from $4,742,000 in fiscal 1954 to $3,565,000 in fiscal 1957, moving in the opposite direction from that of the local and helicopter carriers. One of the Alaskan carriers, Reeve Aleutian Airways, has even achieved subsidy-free status, as of March 11, a feat none of the local and helicopter airlines thus far has been able to accomplish.

In addition the Alaskan final rates appear to have offered better profit chances than the rates of the local and helicopter airlines.

To summarize, a crash program by the board now for final rates for the local and helicopter airlines, in line with the Alaskan precedent, coupled with a willingness to make final rates both adequate and flexible, seems clearly needed.

Ground Power Unit for Turbojet Transports

When the Boeing 707 made a stop at Los Angeles International Airport during CAA functional and reliability flight tests, it gave AiResearch Manufacturing Co. a chance to try out the prototype of its ground handling unit for jet transports. Cart is equipped with a GTCP85-91 gas turbine unit produced by AiResearch's Phoenix division. Eastern Air Lines has ordered a fleet of the units for starting and to supply electrical and pneumatic ground power for its Lockheed Electras. The AiResearch unit was used for two starts of the Boeing during its Los Angeles stopover.

Mail Rate Status

(As of June 15, 1958)

Local Service Carriers	Open or Closed	Since
Allegheny	Open	4/ 1/55
Bonanza	Open	7/ 1/57
Central	Open	4/ 6/56
Frontier	Open	10/ 1/57
Lake Central	Open	1/ 1/57
Mohawk	Open	7/ 1/55
North Central	Open	11/23/56
Ozark	Open	12/13/57
Pacific	Open	1/ 9/56
Piedmont	Closed	3/15/57
Southern	Open	4/ 6/56
Trans-Texas	Closed	4/23/57
West Coast	Open	12/ 1/56
Helicopter Carriers		
Chicago	Open	4/ 6/56
Los Angeles	Closed	2/18/57
New York	Open	2/ 3/56
Intra-Alaskan Carriers		
Alaska	Open	2/ 4/57
Alaska-Coastal	Closed	6/19/52
Cordova	Open	12/ 4/57
Ellis	Open	12/12/57
Consolidated	Open	10/22/57
Pacific Northern	Closed	12/27/57
Reeve *	Closed	3/11/58
Wien	Closed	5/15/58

* Reeve Aleutian Airways is the only carrier in this list which has achieved subsidy-free status. It now receives service mail pay only.

Note: Closing dates are dates of final rate orders.

Source: C.A.B. mail rate decisions and orders.

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Pancake mix, ashtrays and friend.

—EN ROUTE—

Wayne W. Parrish

I Got Pancakes at Liberal ... And a Goose at Lamar

Although I hail from Central Illinois, east of the Mississippi, the "real America," which you've got to know to understand what makes this country great, is the vast plains between the Mississippi and the Rockies.

There's zip in that country—from Montana and the Dakotas all the way down through Texas. Good, live-wire, promotin', civic-minded folks. They like what they've got and they go to all sorts of trouble to make visitors welcome.

My hobby of hitting every airport served by a scheduled airline service has taken me across and up and down the plains states many times. But I must say that one of the most amazing trips of all was the one I took on Central Airlines last Nov. 30. Even though it was Saturday, the local turnout to welcome a bird like me was something to behold.

• **How to arrange airport-hopping**—I was en route to the West Coast. So I thought it was a good time to hit three new stops added to the Central system: Liberal, Kansas; Guymon, Okla., and Lamar, Colo. I called Keith Kahle, Central's president, down in Fort Worth, and told him I could take a TWA Connie out of Washington Friday night, stay overnight in Oklahoma City and take the early (now afternoon) once-daily flight to Denver if he would clear the space and not have his airplane pass over one of those three towns just because there might not be a passenger on or off.

That was enough for Kahle, who'll never be caught behind the barn if there's a chance to do some promoting of Central. By the time my trip ended I wondered whether I was running for office or whether I was just a freak on display. No paying passenger ever performed harder work on a routine schedule.

The TWA flight to Oke City via St. Louis was fine and I got my first glimpse of that handsome new terminal there and also TWA's very attractive Ambassador Club. Thanks to TWA Agent Dwane Glasscock and attractive Pat Harris, the club hostess that night, I had a pleasant stop.

At Oke City, a very nice guy from TWA whose name I regrettably have misplaced, took me after midnight to the Airlines Motel a few miles from the airport. I got a good sleep but when I checked out in the morning I learned the place had been robbed five minutes after I turned in. The robber undoubtedly had been nearby when I arrived.

V. R. Westbrook, Central's DSM for Oklahoma City, picked me up at the motel and accompanied me as far as Colorado Springs. It was one of those beautiful Oklahoma mornings—crisp, cool and clear. The crew was Capt. W. B. Blackman, First Officer B. L. Knight and Stewardess Colleen Wealand. There was a fair passenger load the whole trip.

First stop was Enid, Okla., but I had been there before, so no ceremony, Westward across the plains we flew to Liberal, in the extreme southwest corner of Kansas. A sizeable delegation from the Chamber of Commerce, headed by Manager Merle Goddard, plus some Jaycees, was on hand along with a roving radio reporter with live mike and photographer from *The Southwest Times*.

• **In the "pancake center" of the world**—I was presented a package of pancake mix and a couple of fancy ashtrays and informed that I was in the pancake center of the world. Sure enough, Liberal is the town that has that annual pancake race with an English town every year (Feb. 18 was the last one) and I can testify that the pancake mix lives up to its reputation.

Next stop was Guymon, Oklahoma. An even bigger delegation, headed by Mayor Francis Miller and Orville Nash, chairman of the airport board, awaited my arrival. Guymon is out in the panhandle and celebrated its 50th anniversary last year. I was made an honorary member of the C. of C. It is a livewire community and has attracted some industry out there to balance the agricultural economy. It's growing. Radio and newspapers were represented and I gave a little spiel over the mike. C. E. Adams, manager of one of the local industries, boarded the plane with me and filled me in on the town's growth.

Then came Lamar, in the southeast corner of Colorado. They really had a crowd out for the arrival. I was taken to the terminal and informed that I was now in the duck- and goose-hunting capital of the world and they wanted me to have a goose. But I'd have to shoot it. The local radio station was picking up all the conversation. I was handed a shotgun and told to shoot into the air so I could get my goose.

• **It's not a real goose, really**—I had to confess I'd never even held a shotgun before, much less shot one. But the crowd egged me on, so I pointed up and pulled the trigger. What went off was a "cracker" shell which has no shot in it but which is for rallying ducks on depredation complaints. And then around the corner of the terminal rushed Allen E. Niemeyer, federal game management agent, carrying a papier maché decoy goose, about 2½ feet long, and handed same to me. The crowd got a big kick out of this hapless Easterner being given the Lamar treatment, and I got off a few quips myself. It was good fun and I have that big goose, complete with plaque, in my study at home.

Thanks to John Statler, the C. of C. president, and his cohorts, for a memorable event, and thanks to Bob Greer of *The Lamar Daily News* for a good story.

Next stop was Colorado Springs. Dr. Hazen P. Anderson, chairman of the C. of C. aviation committee, was on hand with a *Gazette-Telegraph* photographer, to present to me a deed to a square foot of Pikes Peak. Let trespassers on my mountain real estate beware!

At Denver I was met by a gang of friends including Dallas Cook of the C. of C., Henry Banham of Central, Herman Gasert of Denver airport and Gerry Brooder of Western. Next day I flew to Los Angeles via Western's inaugural flight by way of Phoenix and San Diego.

MAYOR, officials and a representative of the local radio station came out to greet **Wayne W. Parrish,** AMERICAN AVIATION's **headman, at Guymon, Okla. airport.**

AIRTRENDS

Growth of helicopter traffic is forcing construction of new heliports and parking facilities. New York City Department of Marine and Aviation is planning to build $1-million base for copters and seaplanes extending over East River at 23rd St. Building, measuring 350 ft. by 125 ft., will have parking space for 395 cars under cover and 130 on an open roof. Facility reportedly will be operated under lease by Gulf Oil Corp. Work is expected to begin next month. Other cities will be watching New York experience with interest.

Latest contribution to prevention of mid-air collisions from Air Research and Development Command is a visual decoder made by Burroughs Corp. Now being tested at Wright Air Development Center, the decoder automatically identifies by number or letter specific aircraft seen only as a blip on the controller's ground radar screen. It works in conjunction with conventional radar.

Unexpected complications confront Port of New York Authority because of its "supermarket" Customs examination system at Idlewild.

Passengers and Customs officials are complaining that onlookers are "seeing all" from the glass-enclosed balcony provided for public awaiting arriving friends. Balcony is right over baggage examination locations.

Customs shies at having search methods studied, and passengers are shy about having just anybody looking into their bags.

The World's largest underground fueling system is claimed by Eastern Air Lines for their new installation at Miami International Airport. Capable of pumping 11,000 gallons of aviation fuel per minute, the system has six outlets imbedded in the concrete ramp at each loading position. Three outlets are located under each wing to permit attendants to select 100 octane, 115 octane or jet fuel. Cost was estimated at $1,250,000.

Airport research is long overdue. This was the curt appraisal handed to Congress recently by E. Thomas Burnard, executive director of Airport Operators Council, in testimony before House Government Operations Committee, Legal and Monetary Subcommittee. The areas of need: runway and taxiway configurations; visual aids; ground traffic control; multiple airport configurations; new airport locations and airport layouts.

Burnard charged that only CAB among government agencies has recognized officially in hearings on airport legislation that adequate and improved airports are essential for jet operations, that there has been a vacillating, lethargic and even hostile attitude at times by the government agency with primary responsibility for carrying out airport mandates from Congress.

•

And CAA airport data is obsolete. Through lack of funds from Congress and lack of forceful leadership and planning in CAA, basic planning data supplied early in Airport Aid Program has become obsolete and inadequate for present and future planning, according to Burnard. Although CAA under Administrator Pyle is working overtime to mend the deficiency, much remains to be done.

CAB awarded three carriers new routes in the Southeast. Southern Airways will now serve: Huntsville, Ala. on a new Atlanta-Memphis route; Anniston, Ala. as a stop between Atlanta and Gadsen, Ala., on its present Atlanta-Memphis segment; New Orleans-Eglin AFB-Panama City, Fla., on a new route. Eastern Air Lines will serve Melbourne, Fla. (near Cape Canaveral) on its present route between Florida and the Midwest. National Airlines will also serve Melbourne on the Miami-Tampa segment of its present Florida-Houston route. The press release decision concerned that part of the Southeastern Area Local Service Case which was expedited at the request of the Department of Defense.

Airport Operators Council has scheduled its mid-year membership conference September 20-30 at the Mayo Hotel, Tulsa, Okla.

NEWS SUMMARY

The "third man" in TWA's jetliners will be a mechanical-specialist engineer—under terms of an agreement concluded by the airline and FEIA. The agreement followed the report on the dispute by the third of the President's fact-finding boards.

The Boeing 707-023s ordered by American Airlines (see page 21) are the same as the 720s ordered by UAL. AA apparently didn't want its aircraft designated the same as United's, so Boeing obliged.

Jefferson County, Colorado, has given up attempts to capitalize on a Supreme Court ruling in a Michigan case allowing the taxation of federal property used by industry. It was agreed that Colorado law permits taxing property only—not use. At stake was a claim for $42.2 million in taxes to be levied against Martin, Dow Chemical and Air Products.

McDonnell has developed and is flying a new three-blade, tipjet cargo copter. Empty weight is 2,400 lbs., gross 6,300 lbs.

Lockheed's Electras are quieter than piston-engine airliners according to official tests conducted by Bolt Berenek and Newman for the Port of New York Authority. Powered by Allison turboprops, the Electra was reported to make less noise 1.47 miles from start of takeoff than is made by comparable piston craft 2.2 miles away.

The Renegotiation Act won a six-month extension—instead of the regular two-year term—from the House Ways and Means Committee. In its approved, amended form the act now would allow appeal from Tax Court decisions (see page 3 & 21). AIA called the action "very fair."

Cessna has announced a Model 210, a single-engine airplane reported to represent "the first new basic design to go on the commercial market in the post World War II period."

Eisenhower vetoed appropriation bill that includes new funds for the Renegotiation Board and the National Advisory Committee for Aeronautics.

Air France's Paris-Moscow service began August 3 with one round trip each Sunday and Wednesday.

The Iven C. Kincheloe, Jr., Memorial Scholarship Fund was announced Thursday, July 31—the day before the crash victim (see page 22) was buried in Arlington National Cemetery. The fund will be available to Purdue University students who are accomplishing basic research in the field of aeronautics and astronautics. Contributions may be sent to the Purdue Alumni Scholarship Foundation, Lafayette, Ind.

Lockheed Aircraft Service will be the authorized maintenance representatives for Boeing 707s and 720s at bases in Ontario, New York and Oakland, Calif. under the terms of a recently signed license agreement.

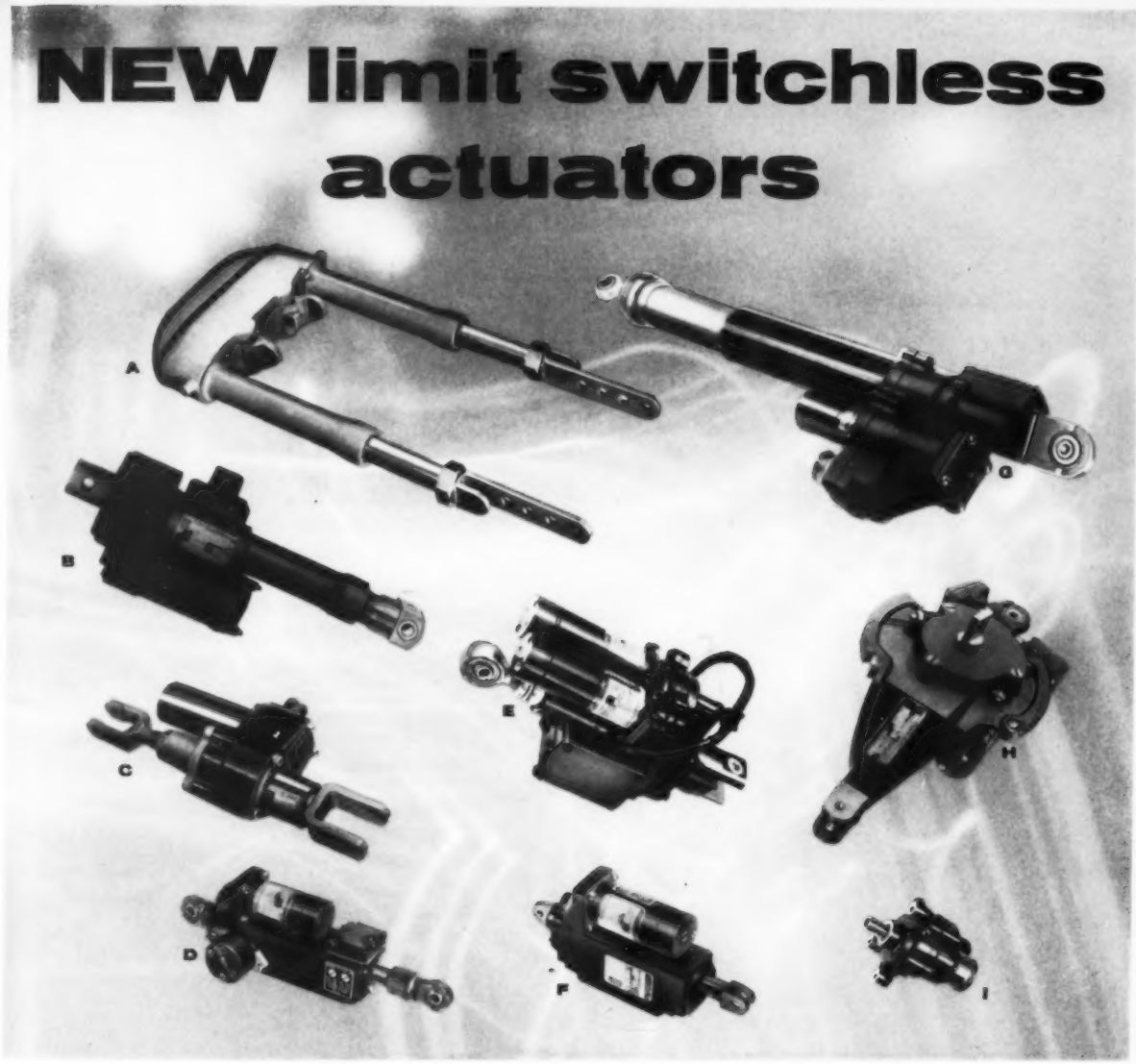
Ozark and ALPA signed an agreement, extending to Oct. 31, 1959, which provides a 10.6% wage increase and added fringe benefits. The wage hike is retroactive to Jan. 1, 1958.

Northeast Airlines' new turboprop Viscounts will start flying regular schedules on August 21. The first three of the new fleet —representing an investment of nearly $15 million—will arrive in Boston this week. Incidentally Northeast is celebrating its 25th anniversary today.

After more than two years and 20,000 pages of transcript, briefs, and exhibits, the General Passenger Fare Investigation ended on the afternoon of August 1. Next step will be the initial decision of Examiner Wiser followed by exceptions filed and oral arguments. Final step will be issuance of an order and opinion—probably next spring.

Boeing and Lockheed are pushing hard for certification of the 707-120 and Electra, respectively. Boeing completed 150-hour functional and reliability tests on its 707 on July 31. Lockheed, with an August 22 target date, is flying its turboprop Electra on a three-shift schedule.

NEW limit switchless actuators



Reduce weight and cost 25% below conventional design

A reduction in actuator cost and weight up to 25 per cent, with similar maintenance savings, has been achieved through the advance design of AiResearch electromechanical Limit Switchless Actuators for aircraft and missiles.

Elimination of limit switches in power actuators is a result of AiResearch development of superior high temperature motors and resilient non-jamming positive stops.

Limit switches are eliminated by two methods: 1) use of continuous stall high temperature motors, 2) use of high temperature motors with thermal protectors which permit maximum *on* time in the duty cycle.

Additional advantages of AiResearch Limit Switchless Actuators: they are smaller, less complex and the possibility of limit switch failure is eliminated.

Development of Limit Switchless Actuators reflects AiResearch experience in producing more than a million rotary and linear units. Current production includes several hundred actuator types, many with high temperature applications.

Your inquiries are invited.

- **A** *Seat Actuator, CONVAIR B-58*
- **B** *Seat Actuator, LOCKHEED F-104*
- **C** *Rotor Blade Trim Actuator*
- **D** *Elevator Actuator, TEMCO XKDT-1 Target*
- **E** *2-Motor Trim Actuator, REPUBLIC F-105*
- **F** *General Purpose Linear Actuator*
- **G** *Dual Purpose Feel Trim Actuator, AVRO CF-105*
- **H** *Rudder Trim, AVRO CF-105*
- **I** *Duct Shutter Actuator, LOCKHEED ELECTRA*

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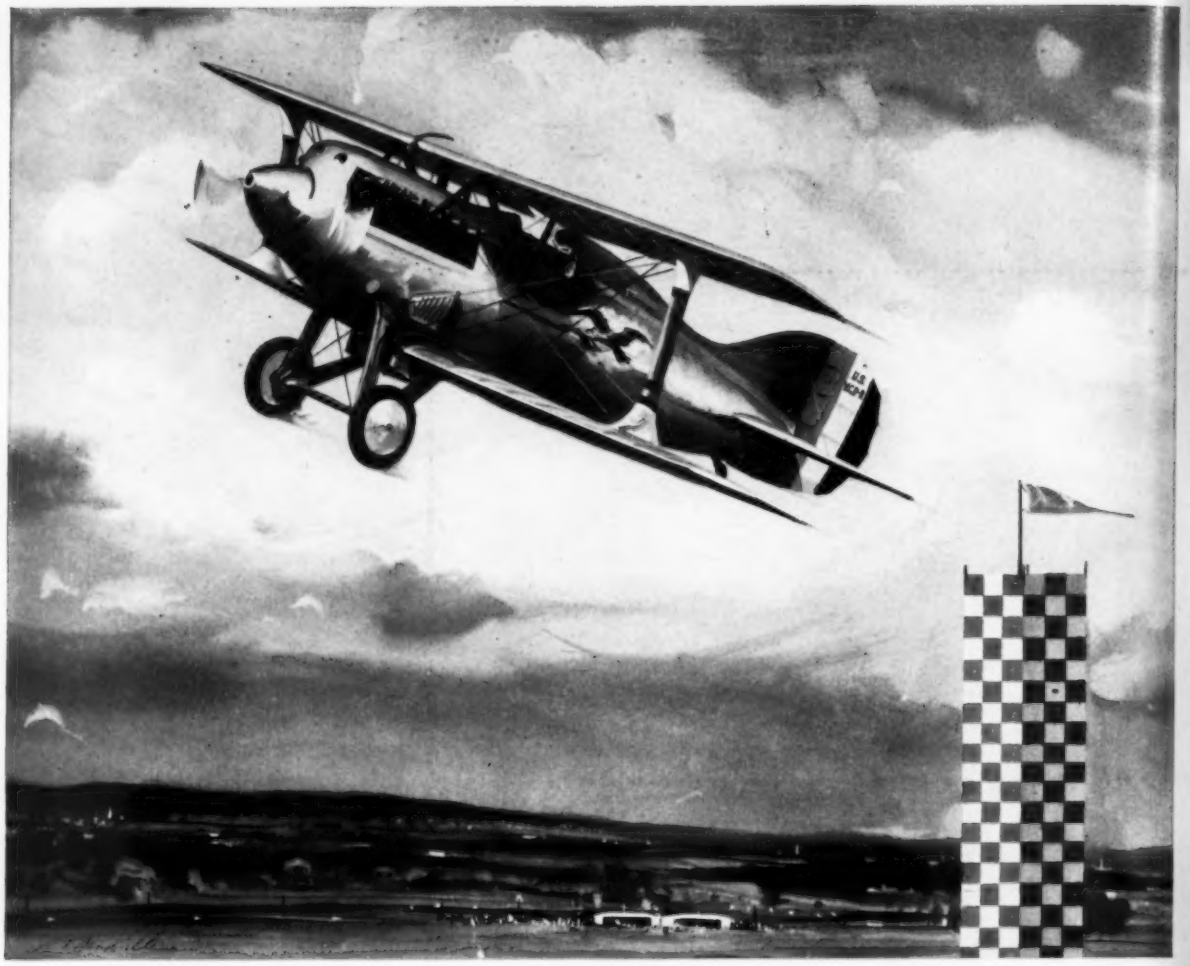

Verville-Packard Racer...First to Win the Pulitzer Races

In 1920, Lieut. C. C. Moseley, flying the Verville-Packard Racer, expertly threaded his way past 36 other planes to win the Pulitzer Trophy Race with a speed of 178 miles per hour. Flying at less than full throttle, because of a defective carburetor, the Verville-Packard outran the other planes through sheer power.

The victory was a tribute to Moseley's flying skill and the creative design genius of Alfred Victor Verville. The design of the Verville-Packard created considerable excitement. Its wing loading of 14.12 lbs. per sq. ft. was considered enormous; and its 550 h.p. Packard engine exceeded by about 250 h.p. the limit that was then considered feasible for single seater aircraft.

Verville made many notable contributions to aviation, among them the Verville-Sperry Racer monoplane that won the Pulitzer Trophy Race in 1924. The Verville-Sperry has been called the true ancestor of modern fighting aircraft. Mr. Verville is at present Technical Advisor in the USN Bureau of Aeronautics.

● A pioneer in research and development of aviation fuels, Phillips Petroleum Company is, today, a foremost supplier of high octane gasoline for commercial, private and military aircraft. In step with the future, Phillips is a leading producer of *super-performance* jet fuels for the latest designs in turbo-props and jets. And Phillips research continues to lead the way for development of fuels for the aircraft of tomorrow.

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